DOCTOR OF CLINICAL PSYCHOLOGY (DCLINPSY)

Doctorate in Clinical Psychology: Main Research Portfolio

a) The role of alcohol misuse in the long-term course of PTSD following deployment to Iraq and Afghanistan in UK military veterans; 2) PSYCHOLOGISTS' PERCEPTIONS OF BARRIERS AND FACILITATORS TO INDEX OFFENCE ASSESSMENT AND FORMULATION WITHIN A MEDIUM SECURE UNIT; 3) THE ROLE OF SELF-FOCUSSED ATTENTION IN SOCIAL ANXIETY IN INDIVIDUALS WITH HIGH-FUNCTIONING AUTISM SPECTRUM DISORDER.

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Main Research Portfolio

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Abstracts

MAIN RESEARCH PROJECT

The role of self-focussed attention in social anxiety in individuals with high-functioning autism spectrum disorder

Social anxiety is one of the most common anxiety disorders in adolescents with autism spectrum disorder (ASD). The cognitive model of social anxiety (Clark & Wells, 1995), with a focus on internal appraisals, has an established evidence-base in typically-developing individuals. In contrast, the developmental pathways model (Bellini, 2006) suggests social skills deficits and difficulties coping with high levels of physiological arousal associated with anxiety are key to understanding social anxiety in individuals with ASD, thereby implicating social skills training and relaxation as appropriate interventions. The present study investigated the applicability of a number of cognitive factors (self-focussed attention, interoceptive awareness, public and private self-consciousness, self- and observer-rated social skills performance discrepancy) in individuals with ASD (n=33), divided into two groups: low social anxiety (n=16) and high social anxiety (n=17). Participants took part in a group-based paradigm, designed to simulate a social situation. Between-group comparisons indicated higher situational levels of self-focussed attention and interoceptive awareness in high socially anxious individuals compared with low socially anxious individuals, with a significant positive correlation between the two variables. Observer-rated social skills performance and self-focussed attention accounted for a significant proportion of the variance in social anxiety. Findings were discussed in relation to theoretical accounts of social anxiety in ASD, and clinical implications include the recommendation that cognitive interventions should be added to social skills training and relaxation in individuals with ASD and high social anxiety.

Keywords: Autism; social anxiety; self-focussed attention; interoception; social skills.

SERVICE IMPROVEMENT PROJECT

Psychologists' perceptions of barriers and facilitators to Index Offence Assessment and Formulation within a medium secure unit

Index Offence Assessment and Formulation (IOAF) helps service users (SU) in secure units to make sense of their Index Offence, provides detailed understanding of risk and contributes to discharge decisions. However, difficulties with IOAF are common. Psychologists' perceptions of barriers and facilitators to engaging SUs in IOAF within the Men's and Women's services of one medium secure unit were explored through focus groups and questionnaires. Thematic analysis identified two relevant domains: the organisational context and person-specific factors. Organisational barriers in the Men's service included resource problems and the team not giving consistent consideration to long-term risks compared with SU mental health, whilst good resourcing and a consistent team focus on risk were facilitators in the Women's service. Person-specific barriers in both services included underlying trauma reducing motivation to engage, whilst giving clarity and choice facilitated engagement. Recommendations included developing a framework to be embedded within a 'risk' care pathway, improving information-sharing across services, increasing staffing and providing clear information about IOAF.

Keywords: Index offence; psychological assessment; forensic; engagement; barriers; facilitators.

CRITICAL REVIEW OF THE LITERATURE

The role of alcohol misuse in the long-term course of PTSD following deployment to Iraq and Afghanistan in UK military veterans

The prevalence of post-traumatic stress disorder (PTSD) in UK military veterans deployed to Iraq and/or Afghanistan is reportedly low, whilst alcohol misuse is comparatively high. The UK military is acknowledged to have an embedded drinking culture, so understanding the contribution of high levels of alcohol misuse to mechanisms that maintain PTSD is pertinent. The Ehlers and Clark (2000) cognitive model of PTSD outlines that alcohol can be used as a safety-seeking behaviour to cope with distressing symptoms, but can also prevent disconfirmation of maladaptive appraisals. Theoretical models of the association of alcohol misuse with PTSD were examined and a narrative review of the literature conducted. 19 papers examining alcohol misuse and PTSD in UK military veterans deployed to Iraq and/or Afghanistan were identified, and the following questions addressed: 1) what is the prevalence of co-morbid alcohol misuse and PTSD following deployment; 2) does alcohol misuse impact upon long-term maintenance of PTSD; 3) is alcohol used by veterans as a method of coping with trauma; and 4) does pre-deployment alcohol misuse create a vulnerability to post-deployment PTSD. Results highlighted limited evidence that alcohol misuse is more prevalent in personnel with PTSD than those without, is associated with the onset of PTSD, is used in place of more adaptive coping mechanisms, and may increase vulnerability to PTSD. The limitations of findings were discussed. Research more closely examining the relationship between alcohol misuse and PTSD in UK veterans is recommended, with particular attention to the long-term course of PTSD and motivations for drinking.

Keywords: Military; deployment; PTSD; trauma; alcohol misuse; UK.

Critical Review of the Literature

THE ROLE OF ALCOHOL MISUSE IN THE LONG-TERM COURSE OF PTSD FOLLOWING DEPLOYMENT TO IRAQ AND AFGHANISTAN IN UK MILITARY VETERANS

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Submission Details

The Journal of Psychiatric Research was selected as the intended journal for submission because the journal is dedicated to 'innovative and timely clinical research' and has published numerous articles relating to the military, post-traumatic stress disorder and/or alcohol misuse. The journal also has a high impact factor and publishes review articles.

INTRODUCTION

As the UK has recently seen the withdrawal of military troops from the wars in Iraq and Afghanistan, the mental health of its veterans is a current concern. Military combat has long been associated with Post-Traumatic Stress Disorder (PTSD), of which alcohol misuse is a common co-morbidity (Kessler et al., 2005; Kessler et al., 1995). A recent systematic review of 42 studies conducted within military and civilian populations reported prevalence rates of co-morbid alcohol misuse in individuals with PTSD between 9.8% and 61.3% (Debell et al., 2014). Whilst recent studies of UK military personnel deployed to Iraq and/or Afghanistan have found the overall prevalence of PTSD to be low, alcohol misuse is comparatively high (e.g. Fear et al., 2010). Curiously, the converse has been found in studies of the US military, with comparatively higher rates of PTSD but lower levels of alcohol misuse reported (e.g. Seal et al., 2007). Attempts to explain the difference in PTSD rates focus on the level of combat exposure between UK and US samples (Hotopf et al., 2006). However, the question remains as to whether high alcohol misuse in the UK military may be impacting upon the mechanisms which maintain PTSD; the severity of alcohol misuse can correlate with the severity of PTSD (Debell et al., 2014).

PTSD can develop following exposure to a traumatic event including actual or threatened death, serious injury or sexual violence (APA, 2013), and deployment to war zones in Iraq and Afghanistan presents increased risks of exposure. Symptoms of trauma include persistent re-experiencing of the event, avoidance of trauma-related stimuli, negative cognitions and mood, and changes in arousal and reactivity. Ehlers and Clark's (2000) cognitive model of PTSD proposes that PTSD arises when a traumatic event is perceived to remain as a persistent and current threat resulting from differences in the cognitive processing of trauma memories and subsequent maladaptive appraisals. Individuals often attempt to control the sense of threat using 'safety-seeking' behaviours (Salkovskis, 1991); alcohol is a common avoidance strategy used to cope with maladaptive appraisals and reduce distressing symptoms (Ehlers & Clark, 2000). However, using alcohol in this way prevents disconfirmation of maladaptive appraisals about the meaning of symptoms and prevents changes in the nature of the trauma

memory, which may maintain symptoms of PTSD and impact upon treatment outcomes.

A number of theoretical models exist that seek to further explain the relationship between alcohol misuse and PTSD (e.g. Chilcoat & Breslau, 1998). Akin to the cognitive model, the self-medicating hypothesis highlights that alcohol can appear to alleviate distressing emotions associated with PTSD (Khantzian, 2003). However, alcohol is actually a depressant and produces negative longer-term effects (Khantzian, 2003). Self-medicating with alcohol only has a brief numbing effect and the heightened awareness of distressing emotions upon withdrawal can lead to increased alcohol intake to alleviate symptoms (Baker et al., 2004). For example, alcohol might initially induce sleep and help avoid distressing cognitions, but as tolerance builds, the efficacy of this reduces and alcohol may prevent sleep and exacerbate distressing cognitions (Lande, 2012). Consequently, whilst alcohol misuse might dampen early symptoms of PTSD, the *chronicity* of symptoms may be maintained in the long-term; PTSD symptoms without co-morbid alcohol use can be initially more severe but resolve more quickly (Kaysen et al., 2011). Crucially, this indicates that the impact of alcohol misuse upon symptoms of PTSD may change over time.

The high-risk hypothesis suggests that the risk of exposure to traumatic events is increased as a direct consequence of drinking alcohol (Chilcoat & Breslau, 1998), although as alcohol is banned on deployment this is improbable. More relevant is the susceptibility hypothesis, which proposes alcohol misuse to be a risk factor for PTSD by indicating an underlying avoidance pattern that impedes the processing of trauma memories and contributes to the maintenance of symptoms (McFarlane et al., 2009). In civilians, a prior history of alcohol misuse was associated with using alcohol as an avoidance method of coping with trauma and increased PTSD symptoms in the long-term (Hruska et al., 2011).

Alcohol misuse has long been researched within the military (e.g. Jones & Fear, 2011; Verrall, 2011) and high rates of drinking are acknowledged to be related to military culture. For example, excessive alcohol use is more prevalent in the UK military than the civilian population and other 'high-risk' professions such as the police (Fear et al., 2007), and alcohol is used as an agent by the UK military to encourage unit cohesion

(Jones & Fear, 2011). However, a drinking culture in the UK military may have prevented personnel developing more adaptive means of coping with distress (McDowell & Rodriguez, 2013), potentially leading to the subsequent misuse of alcohol as a maladaptive method of coping with exposure to traumatic events on deployment, in line with the cognitive model of PTSD (Ehlers & Clark, 2000).

Evidence for the relationship between alcohol and PTSD in veterans is supported by recent findings highlighting an association of alcohol with military deployment. For example, alcohol misuse increases with the duration of deployment (Rona et al., 2007), and increases in alcohol usage from pre- to post-deployment are more prevalent amongst those reporting traumatic deployment experiences, particularly fearing death or experiencing hostility from civilians (Hooper et al., 2008). Of course, factors aside from deployment may also be contributing, such as problems at home (Browne et al., 2008). However, regardless of whether alcohol is used as a direct method of coping with PTSD, this does not preclude the possibility that alcohol may be indirectly impacting upon PTSD, either by maintaining symptoms in the long-term or indicating an underlying vulnerability to developing PTSD.

Alcohol has been highlighted as a beneficial agent for unit cohesion and so high rates of alcohol misuse may not be perceived as overly problematic within the UK military. However, given literature from other populations highlighting the common association between alcohol and PTSD, it seems probable that alcohol misuse following deployment is, at least in part, a coping response to the stress of deployment, which draws into question the impact of alcohol upon the long-term course of PTSD and has implications for clinical treatment approaches. The literature examining alcohol misuse and PTSD in UK military personnel deployed to Iraq and/or Afghanistan will be critically reviewed to answer the following questions:

1) What is the prevalence of co-morbid alcohol misuse and PTSD following deployment?
2) What is the impact of alcohol misuse upon the long-term maintenance of PTSD following deployment?
3) What is the evidence that alcohol is used as a method of coping with the symptoms of PTSD following deployment?

4) What is the evidence that pre-deployment alcohol misuse is a vulnerability factor for PTSD following deployment?

METHODS

A systematic search of the literature was conducted using three databases: PubMed, APA PsycNet and Web of Science. Free text keywords, with wildcard operators where appropriate, were used to search the databases, and keywords were selected in order to be as inclusive as possible regarding concept meanings. The PTSD aspect of the search used the following terms: "PTSD", “post-traumatic stress disorder”, “post traumatic stress disorder”, “posttraumatic stress disorder”, “stress disorders, post-traumatic”, “stress”, “distress”, and “trauma*”. Papers examining PTSD were specified to those also examining alcohol by the addition of the following search terms: “alcohol*”, “drink*”, and “binge*”. The military aspect of the search used the following search terms: “armed forces”, “military”, “veteran*”, “deploy*”, “war”, and “combat”. Finally, the search was specified to the UK only with the inclusion of the following search terms: “UK”, “U.K.”, "United Kingdom", "Britain", and "British". Search terms from the four aspects were combined using the Boolean operator ‘AND’, which resulted in 583 papers. Following removal of duplicates, 482 papers remained in the search pool.

Subsequent to a title/abstract search, 412 papers were removed as they were not directly relevant to the review. Common reasons for removal included 1) exclusively civilian samples, 2) non-UK military personnel, and 3) did not examine PTSD and alcohol misuse. Following this stage, 70 papers remained in the search pool.

The full-text of each paper was then reviewed. Papers were included according to the following criteria: (1) UK-based population, (2) regular or reserve military personnel, (3) deployed to Iraq on operation TELIC or Afghanistan on operation HERRICK in any military capacity, (4) used validated measures of PTSD and alcohol misuse, (5) PTSD and alcohol misuse analysed in their own right rather than as part of broader categories, e.g. ‘psychological distress’, (6) reporting primary data, and (7) peer reviewed studies.

Studies were excluded according to any of the following criteria: (1) reviews or extracts from books, (2) the publication comprised an abstract only, (3) only one of PTSD or alcohol use was analysed, (4) personnel could not be differentiated from those deployed to areas other than Iraq or Afghanistan, (5) deployed personnel could not be clearly differentiated from non-deployed personnel, (6) alcohol misuse and PTSD were not primary outcome measures, or (7) measures were not collected post-deployment.

RESULTS

19 papers met criteria for inclusion in the review. Full details of the sample and methodology used in all studies meeting inclusion criteria are given in Table 1, which outlines a range of study designs utilising relatively large sample sizes. Findings from each paper will be addressed in relation to each of the four key research questions.

Table 1. *Methodological Aspects of Included Studies*

Authors and Date	Sample Details	Military Branch	Design and Measures	Aims of Study	Co-morbidity
Du Preez et al. (2012)	Extracted from the KCMHR phase one cohort. 4901 male personnel deployed to Iraq: 4194 regulars and 707 reservists.	Royal Navy (RN), Royal Marines (RM), Army, Royal Air Force (RAF)	Cross-sectional questionnaire design. PCL ≥ 50, AUDIT ≥ 16.	Examining how perceptions of unit cohesion on deployment impacted upon mental health outcomes.	None reported.
Fear et al. (2009)	Extracted from the KCMHR phase one cohort. 5869 personnel deployed to Iraq: 4928 regulars and 941 reservists.	RN, Army, RAF	Cross-sectional questionnaire design. PCL ≥ 50, AUDIT ≥ 16.	Examining the relationship of post-concussion symptoms with deployment experiences and mental health outcomes.	None reported.
Fear et al. (2010)	The entire KCMHR phase two cohort (56% response rate). 6715 personnel deployed to Iraq and/or Afghanistan: 5743 regulars and 972 reservists. 3255 non-deployed personnel: 2518 regulars and 737 reservists.	RN, Army, RAF	Cross-sectional questionnaire design. PCL ≥ 50, AUDIT ≥ 16.	Comparing the overall mental health outcomes of deployment to Iraq and/or Afghanistan with non-deployed personnel.	None reported.
Forbes et al. (2012)	Extracted from the KCMHR phase two cohort. 3896 Army personnel deployed to Afghanistan after 2006 or Iraq: 3204 regulars and 692 reservists.	Army	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining mental health outcomes following an illness or injury on deployment.	None reported.
Goodwin et al. (2012)	Extracted from the KCMHR phase two cohort also using longitudinal data from phase one. 1397 male and female personnel deployed to Iraq prior to phase one data collection: 1003 regulars and 394 reservists.	RN, Army, RAF	Cohort questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Comparing normal-onset PTSD with delayed-onset PTSD following deployment.	Reported the number of personnel with PTSD and co-morbid alcohol misuse.
Harvey et al. (2011)	Extracted from the KCMHR phase one cohort. 4991 male and female personnel deployed to Iraq and/or Afghanistan: 4488 regulars and 503 reservists.	RN, Army, RAF	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining the impact of post-deployment social functioning on mental health outcomes.	None reported.

Hotopf et al. (2006)	The entire KCMHR phase one cohort (59% response rate). 4722 male and female personnel deployed to the 2003 Iraq war: 3936 regulars and 786 reservists. 5550 non-deployed personnel: 4750 regulars and 800 reservists.	RN, RM, Army, RAF	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT > 13 for men and >10 for women.	Comparing the overall mental health outcomes of deployment to the 2003 Iraq war and subsequent Iraq tours with non-deployed personnel.	None reported.
Iversen et al. (2009)	Recruited from the KCMHR phase one cohort (76% response rate). 821 male and female personnel. The sample was stratified by regular and reservist status (50% each) and also according to deployment status (50% deployed to Iraq and 50% deployed to Afghanistan or non-deployed).	RN, Army, RAF	Cross-sectional telephone interview design. DSM-IV 'Criterion A' screening question, 4-Item Primary Care PTSD Screen ≥ 3, Patient Health Questionnaire Alcohol 'abuse' score.	Examining mental health outcomes of deployment to Iraq and/or Afghanistan using a clinical-interview based method.	None reported.
Jones et al. (2008)	Extracted from the KCMHR phase one cohort. 5823 male and female personnel deployed to Iraq: 4890 regulars and 933 reservists. The sample included 479 medics.	RN, Army, RAF	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining whether deploying as a medic compared to other trades impacts upon mental health outcomes.	None reported.
Jones et al. (2013)	Extracted from the KCMHR phase two cohort. 3071 male and female personnel deployed to Afghanistan: 2733 regulars and 338 reservists. 1407 personnel attended Third Location Decompression (TLD).	Army, RM	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining the impact of attending TLD following deployment on mental health outcomes.	None reported.
Mulligan et al. (2012)	1616 male and female personnel deployed to Afghanistan: 1550 regulars and 66 reservists (66% response rate). 797 attended Battlemind training and 819 attended standard TLD.	RN, Army, RM, RAF	Randomised Control Trial, cross-sectional and cohort questionnaire design. PCL-C ≥ 50, AUDIT total score, Supplementary binge drinking question.	Examining the impact of attending Battlemind training following deployment on mental health outcomes.	None reported.

Rona et al. (2006)	1885 male and female regular personnel deployed to Iraq (66.8% response rate).	RN, Army, RAF	Longitudinal questionnaire design. PCL-C ≥ 50, 3-item AUDIT consumption subscale.	Examined whether screening for mental illness prior to deployment predicted post-deployment mental health outcomes.	None reported.
Rona et al. (2012a)	Extracted from the KCMHR phase two cohort using longitudinal data from phase one. 4620 male and female personnel deployed to Iraq: 4167 regulars and 453 reservists. 2333 personnel also had data available from phase one.	RN, RM, Army, RAF	Cross-sectional and cohort questionnaire design. PCL-C ≥ 50, 3 questions from the AUDIT.	Examining the impact of mild traumatic brain injury on deployment on mental health outcomes.	None reported.
Rona et al. (2012b)	Extracted from the KCMHR phase two cohort. 3763 male and female personnel deployed to Iraq and Afghanistan: 3362 regulars and 401 reservists.	RN, RM, Army, RAF	Cross-sectional design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining whether differences in deployment length impact upon post-deployment mental health outcomes.	None reported
Rona et al. (2012c)	Extracted from the KCMHR phase two cohort using longitudinal data from phase one. 6123 male and female personnel deployed to Iraq prior to phase one: 5088 regulars and 1035 reservists.	RN, Army, RAF	Cohort questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining what factors are associated with persistent PTSD following deployment.	Reported the number of personnel with PTSD and co-morbid alcohol misuse.
Sharpley et al. (2008)	Extracted from the KCMHR phase one cohort using matched data collected prior to deployment. 735 male and female regular personnel deployed to Iraq with the RN or RM. 279 personnel attended stress briefings and 456 were in the control group.	RN, RM	Controlled, non-randomised, longitudinal questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Examining the impact of pre-deployment stress briefings on subsequent mental health outcomes.	None reported.
Sundin et al. (2014)	Extracted from the KCMHR phase two cohort. 313 male regular Army personnel deployed to Iraq in 2007. US sample not included for the purposes of this review.	Army	Cross-sectional questionnaire design. PCL-C ≥ 50, PCL-C > 50 and DSM-IV criteria, PCL total score, 3-item AUDIT consumption subscale ≥ 10.	Comparing the effect of deployment on mental health outcomes in similar UK and US samples.	None reported.

Sundin et al. (2012)	Extracted from the KCMHR phase one cohort. 4332 male and female regular personnel deployed to Iraq. 1352 deployed as Individual Augmentees and 2980 deployed as part of a formed unit.	RN, RM, Army, RAF	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 16.	Comparing the effect of deploying as an Individual Augmentee on mental health outcomes.	None reported.
Woodhead et al. (2012)	Extracted from the KCMHR phase two cohort. 4986 personnel (4554 male and 432 female) deployed to Iraq and/or Afghanistan: 4486 regulars and 500 reservists.	RN, Army, RAF	Cross-sectional questionnaire design. PCL-C ≥ 50, AUDIT ≥ 8.	Comparing the effects of exposure to combat during deployment on mental health outcomes in men and women.	None reported.

1. What is the prevalence of co-morbid alcohol misuse and PTSD following deployment?

Establishing the prevalence of co-morbid alcohol misuse and PTSD in veterans deployed to Iraq and/or Afghanistan is key to identifying whether this is a significant problem. Both co-morbid and independent rates of alcohol misuse and PTSD following deployment will be discussed.

1.1 Co-morbidity prevalence rates

Two studies meeting inclusion criteria examined the extent of co-morbid alcohol misuse within various sub-groups of personnel reporting PTSD, which allows for collapsing groups and calculating prevalence rates of co-morbidity. In a study by Rona et al. (2012c), the prevalence of co-morbid alcohol misuse within personnel with PTSD following deployment was calculated to be 43%, compared with 13.2% in deployed personnel without PTSD. Similarly, in a study by Goodwin et al. (2012), the prevalence of alcohol misuse within personnel with PTSD following deployment was 40.4%, compared with 11.1% in deployed personnel without PTSD. However, these calculations were based on published data and do not incorporate sample weights. No studies meeting inclusion criteria reported the prevalence of co-morbid PTSD within personnel reporting alcohol misuse.

Using data from Rona et al. (2012c), the population prevalence of personnel with co-morbid PTSD and alcohol misuse following deployment to Iraq was calculated to be 1.6%. Similarly, using un-weighted data from Goodwin et al. (2012), the population prevalence of personnel with co-morbid PTSD and alcohol misuse was calculated to be 1.5%. However, the two samples may contain overlapping data as both utilised data from a large-scale cohort study and results must be considered with caution. Furthermore, true anonymity was not possible due to the cohort design and stigma/fears of disclosure may have biased reporting of PTSD symptoms and alcohol misuse, so prevalence rates may be higher than indicated. Finally, prevalence rates in both studies were based on civilian PTSD Checklist (PCL-C) scores of 50 or more,

which excludes personnel with sub-threshold symptoms of PTSD for whom alcohol misuse may be present and thereby increases the potential for false negatives.

1.2 Independent prevalence rates by combat exposures

Five studies examined the impact of combat exposures upon the individual prevalence of alcohol misuse and PTSD in military personnel. The King's Cohort Military Health Research (KCMHR) study (Fear et al., 2010; Hotopf et al., 2006) collected data at two 'phases' – between 2004 and 2006 and sampling personnel deployed to Iraq (Hotopf et al., 2006), and again between 2007 and 2009 and sampling personnel deployed to Iraq and/or Afghanistan (Fear et al., 2010). Sample sizes in both phases were large and response rates were good (see Table 1). PTSD was related to combat exposure; the prevalence of PTSD was higher in regulars deployed in a combat role than in their non-combat counterparts in both the first phase of the cohort study (6% versus 3%) and the second phase (combat role 6.9%; combat service support role 3.6%; combat support role 2.1%). Whilst the prevalence of alcohol misuse was higher in regulars deployed in a combat role than their non-combat counterparts in the first phase sample (33% versus 25%), this effect was removed after adjusting for age in the second phase sample, suggesting the association between alcohol misuse and combat is less clear. However, methodological differences may have affected results; in the first phase sample reported by Hotopf et al. (2006), cases on the Alcohol Use Disorders Identification Test (AUDIT) were defined using a score of above 13 for men and above 10 for women, which was selected to distinguish the top 25% of scores within each gender. Conversely, in the second sample reported by Fear et al. (2010), the more standard cut-off of 16 or more was used. Different cut-offs limit the comparability of these studies and may have contributed to the different findings.

Various methodologies have been used to examine prevalence rates. In a smaller sample by Sundin et al. (2014), the prevalence of PTSD using three different criteria on the PCL-C (see Table 1) was consistently higher in the high- versus low-combat exposure groups. Alcohol misuse, however, did not differ between groups but this was based on the 3-item consumption subscale of the AUDIT. Given the high consumption of alcohol within the UK military, a measure relying solely on

consumption may lack sensitivity to detect differences between groups. A study by Iversen et al. (2009) used a more valid telephone interview-based design and found PTSD to be more prevalent in deployed compared to non-deployed reservists but not regulars, whilst alcohol misuse was not associated with deployment in either group. However, a number of methodological issues are relevant. Alcohol misuse was assessed using the five alcohol 'abuse' questions from the Patient Health Questionnaire (PHQ) that only requires endorsement of one item to meet caseness, which may have lacked sensitivity to distinguish differences. Furthermore, PTSD was assessed using the Primary Care PTSD Screen only if personnel first screened positive on a DSM-IV 'Criterion A' question, which requires a response to a traumatic event including fear, helplessness or horror (APA, 2000). This requirement was removed in the recent DSM-5 (APA, 2013) as this did not reflect the experiences of military personnel, and so this may have increased the number of false negatives in the sample.

Female UK military personnel currently only serve in some combat roles, and the prevalence of 'hazardous' alcohol use is less common in women than men following deployment (Woodhead et al., 2012). This difference in alcohol misuse was found even though a low cut-off of '8' on the AUDIT was used, which resulted in high prevalence rates for both genders (63.8% for men and 49.6% for women), although this may also have increased false positives in both groups. Whilst the overall prevalence of PTSD was similar between genders, PCL-C scores were higher in women than men who reported lower levels of combat exposures, although there was no difference between genders for higher levels of combat exposures. The authors concluded that women have higher underlying levels of traumatic symptoms but ultimately respond to combat exposures similarly to men. However, non-combative traumatic experiences were not reported (e.g. military sexual trauma), which may be confounding conclusions. Although women appeared comparatively under-sampled (Table 1), the proportion of women in the sample (7.4%) was reportedly consistent with recent deployments to Iraq and Afghanistan. Finally, Rona et al. (2012b) examined whether the prevalence of PTSD, alcohol misuse, and other variables including mild traumatic brain injury (mTBI), was actually related to differences in deployment lengths rather than combat exposure. Whilst the length of deployment in UK veterans of Iraq and Afghanistan was associated with reporting mTBI, the

prevalence of PTSD and alcohol misuse was not affected by deployment length (range from <2 months to >7 months) and thus this does not appear to be a confounding variable.

1.3 Independent prevalence rates by adverse experiences

Two studies examined the impact of different adverse experiences on deployment upon individual prevalence rates of PTSD and alcohol misuse. For example, the prevalence of PTSD but not alcohol misuse was higher in personnel experiencing an injury or illness on deployment (Forbes et al., 2012). The prevalence of PTSD in personnel requiring medical evacuation for illness or injury was over four times higher than in those without medical problems, whilst alcohol misuse did not significantly differ between groups. The authors highlighted that because medical evacuation was often for logistical rather than medical purposes, perceived threats to life from illness was likely not a factor. Instead, social isolation on returning home may account for the increase in PTSD, whilst illness is not conducive to drinking alcohol. However, the sample of personnel requiring medical evacuation was comparatively small (n=89) and thus conclusions must be interpreted with caution. Furthermore, 10% of the original sample denied the researchers access to medical records, which may have biased findings. Elsewhere, Post-Concussional Syndrome (PCS) symptoms, including headaches, irritability, and poor concentration, were associated with a higher prevalence of both PTSD and alcohol misuse (Fear et al., 2009). Reporting PCS symptoms was more strongly associated with reported exposure to depleted uranium and/or aiding the wounded than blast exposure, and the authors concluded that PCS may be an expression of underlying psychological distress following exposure to trauma on deployment. Retrospective reporting was used which is open to memory bias, although responses were given in the context of a much broader questionnaire, which may have mitigated somewhat any response bias.

1.4 Independent prevalence rates by role on deployment

The prevalence of alcohol misuse and PTSD has been examined within various sub-groups of military personnel. For instance, the prevalence of alcohol misuse and

PTSD was no different among medics than personnel with other roles, a surprising finding given that medics, although reporting fewer combat exposures, more commonly report adverse medical experiences such as seeing people wounded or killed (Jones et al., 2008). However, the sample size of medics was small compared with personnel in other roles, and thus statistical power to detect PTSD was low, potentially relevant to the absence of statistical difference. Similarly, both the prevalence of PTSD and number of symptoms of PTSD following deployment to Iraq did not differ between regular Individual Augmentees (IAs; personnel deployed without their formed unit) and regular personnel deployed as a formed unit (Sundin et al., 2012). However, the latter group were more likely to be heavy drinkers on the AUDIT than IAs, an effect not modified when adjusting for combat exposure or unit cohesion. The authors concluded that since IAs return to their home unit following deployment, alcohol cannot be used for social interaction and bonding with peers who experienced similar traumas, as is the case for personnel deployed as a formed unit.

In summary, little research examined the prevalence of co-morbidity. However, calculations from published data of the prevalence of co-morbid alcohol misuse in personnel with PTSD were higher than in personnel without PTSD. When examined independently, exposure to combat experiences on deployment is clearly associated with PTSD whilst the association of combat with alcohol seems less clear. Non-combative experiences including illness or exposure to depleted uranium were also associated with PTSD, although only the latter was also associated with higher alcohol misuse. Certain roles on deployment do not impact upon PTSD prevalence, although alcohol misuse was higher in personnel deployed with a formed unit rather than IAs returning to their home unit, highlighting the role of military culture upon alcohol use. However, methodological issues with detecting alcohol misuse and PTSD within the UK military population were highlighted, and so more appropriate screening tools for the military population are recommended.

2. Does alcohol misuse contribute to the long-term maintenance of PTSD following deployment?

Of particular interest is whether alcohol misuse following deployment contributes to the maintenance of PTSD symptoms in the long-term, which will be discussed in relation to both normal- and delayed-onset PTSD.

2.1 The course of normal-onset PTSD

One study used a cohort design to examine whether demographic, service, deployment, post-deployment and mental health variables collected at baseline were associated with the subsequent persistence or remittance of normal-onset PTSD (Rona et al., 2012c). A large sample size (n=6292) was examined with good exclusion criteria: personnel with delayed-onset PTSD or PTSD unrelated to Iraq/Afghanistan deployments were excluded. Alcohol misuse was not associated with persistent or remitting PTSD, although the authors noted that AUDIT scores of '16' might be too common in the UK military to differentiate groups. A number of risk factors for persistent PTSD were identified with modest predictive value: experiencing 'risk to self' events, deploying without a parent unit, feeling unsupported post-deployment, perceptions of poor/fair health, experiencing multiple physical symptoms, age, education, and leaving the service. Interestingly, scoring higher on the hyper-arousal domain of the PCL-C at baseline held a small association with persistent compared with remitting PTSD at follow-up, although whether alcohol misuse was also associated was not examined. However, methodological issues with the study design require addressing. Alcohol misuse was only measured at baseline when all personnel subsequently categorised within 'persistent' or 'remitting' PTSD groups scored above cut-off on the PCL-C. Whilst baseline AUDIT scores did not significantly differ between personnel subsequently categorised with persistent and remitting PTSD at follow-up, the study did not examine how alcohol misuse *over time* contributes to the persistence or remittance of PTSD as, curiously, follow-up AUDIT scores were not reported.

2.2 The course of delayed-onset PTSD

Reporting an increase in alcohol misuse between the two phases of the KCMHR study was associated with delayed-onset PTSD at the second phase, suggesting that alcohol might be a factor in the onset of PTSD (Goodwin et al., 2012). The study incorporated good inclusion and exclusion criteria to ensure appropriate sampling of personnel with 'delayed-onset' PTSD – that which onsets at least six months following trauma. Of personnel reporting delayed-onset PTSD at follow-up, a high proportion had reported 'sub-threshold' PTSD symptoms (PCL-C: 40-49) at baseline, which again highlights the potential for false negatives with strict cut-offs of '50' on the PCL-C. Notably, 18.3% of such personnel reported deteriorating levels of alcohol misuse between the two phases, compared to just 4.2% of those in the 'resilient' group without PTSD at either phase. However, the extent of 'deterioration' was not clear, and so how this corresponds to AUDIT cut-offs for screening methods is unknown. Furthermore, developing a common mental disorder was also associated with delayed-onset PTSD and so may be a mediating factor. Nonetheless, whilst alcohol misuse as a constant was not associated with delayed-onset PTSD, a *change* in alcohol usage was clearly important, although the directionality of the association is unclear.

In summary, there is evidence that alcohol misuse is associated with the onset of delayed-onset PTSD, although the directionality of the association is unclear, and methodological issues with study designs limit conclusions regarding whether alcohol misuse is associated with maintaining PTSD symptoms in the long-term.

3. Is alcohol used as a method of coping with the symptoms of PTSD following deployment?

The question of whether veterans misuse alcohol as a method of coping with symptoms of PTSD following deployment will be addressed, examining whether alcohol suppresses PTSD symptoms or is perceived as a method of coping, as well as exploring the benefits of post-deployment psycho-education.

3.1 Alcohol misuse and PTSD symptom suppression

None of the studies included in this review addressed the question of whether alcohol misuse suppresses symptoms of PTSD. However, the aforementioned finding that worsening alcohol misuse is associated with developing delayed-onset PTSD offers some contradictory evidence (Goodwin et al., 2012). Of course, whether this is related to symptom suppression in the period *prior* to PTSD onset, as defined using, for example, sub-threshold PCL-C scores, is unclear.

3.2 Alcohol misuse as a maladaptive coping method

Two studies offer some evidence that veterans use alcohol as a method of coping, although whether this is associated with PTSD rather than more general post-deployment stresses is unclear. A study of unit cohesion on deployment reported that perceiving seniors to be interested in your thoughts and actions was protective of PTSD in regulars and reservists, whilst endorsing higher levels of perceived comradeship was associated with higher levels of alcohol misuse in regulars (Du Preez et al., 2012). These associations were not mediated by the impact of combat exposure. The authors concluded that alcohol misuse was less likely in reservists who felt able to approach their peers with a personal problem, hypothesised to indicate that alcohol misuse is a negative coping mechanism among reservists whilst talking to peers is more positive. However, retrospective reporting bias may be impacting: personnel with PTSD may perceive deployment differently. Nevertheless, a similar picture was found in a study of reservists' social functioning on return from deployment; PTSD and alcohol misuse were more common among reservists reporting a lack of post-deployment military and civilian support (Harvey et al., 2011). The authors concluded that post-deployment experiences mediate the association between deployment and psychological distress; access to social support appears to be a protective factor for reservists against both alcohol misuse and PTSD. However, whether this association was mediated by combat exposure was not examined, and ascertaining the directionality of this association is limited by the cross-sectional design.

3.3 Education about stress and trauma

Three studies outline military interventions aimed at increasing the coping skills of deployed personnel (Jones et al., 2013; Mulligan et al., 2012; Sharpley et al., 2008), with some success for reducing post-deployment levels of alcohol misuse and PTSD.

Post-deployment 'Third Location Decompression' (TLD) is a 24-36 hour 'unwinding' period in Cyprus that includes psycho-education about identifying and coping with mental health problems. PTSD and alcohol misuse were less common in TLD attendees than non-attendees (Jones et al., 2013). Although a randomised control trial (RCT) design was not used, using propensity scores that accounted for potential covariates strengthened validity and minimised bias from non-randomised groups. When stratifying by combat exposure, TLD was most protective against PTSD in personnel with medium levels of combat exposure compared to non-attendees with equivalent levels. Rates of alcohol misuse were evenly distributed across personnel with all levels of combat exposure. The authors concluded that the social aspects of TLD might allow some personnel to begin cognitively processing deployment experiences, thereby reducing the likelihood of developing PTSD, whilst those in the high combat exposure group might have difficulty engaging in TLD as a consequence of PTSD symptoms including poor concentration and avoidance, and the lower exposure group with fewer PTSD symptoms may have found TLD less relevant. Alcohol misuse did not follow this pattern, although how co-morbid alcohol misuse interacted with PTSD in each combat exposure group was not examined. A second study by Mulligan et al. (2012) used an RCT design to compare standard TLD with an anglicised version of Battlemind, which, in addition to general psycho-education, has a specific focus on the negative consequences of using alcohol for coping. Overall, the prevalence of alcohol misuse and PTSD was no different at six-month follow-up between Battlemind-attendees or standard TLD-attendees, although Battlemind-attendees were less likely to be classified as binge drinkers (frequently drinking 12+ units of alcohol on one occasion) at follow-up than those who received standard TLD, albeit with a small effect size. Whilst this highlights the importance of detection methods, the absence of a control group limits conclusions, and neither the associations of binge drinking with co-morbid PTSD or pre-deployment alcohol misuse were examined.

Pre-deployment stress briefings include psycho-education about mental health difficulties and how to access support, with the aim of pre-emptively increasing coping abilities. However, attending pre-deployment stress briefings had no impact upon post-deployment alcohol misuse and PTSD rates when compared with non-attendees (Sharpley et al., 2008). Methodological issues were present: groups were not randomised and samples were heterogeneous, with attendees were more likely to be Royal Marine (RM) than Royal Navy (RN) and so more likely to be exposed to combat, although adjusting for traumatic experiences on deployment did not alter findings. Furthermore, a cross-sectional rather than longitudinal design was used which did not allow for examination of pre-deployment variables.

In summary, there is some support that alcohol is used in place of more positive social support following deployment, although how this relates to PTSD is unclear. TLD interventions incorporating psycho-education have shown benefits for alcohol misuse and PTSD, although co-morbidity was not examined. Finally, pre-deployment stress briefings had little impact on post-deployment outcomes.

4. Is pre-deployment alcohol misuse a vulnerability factor for post-deployment PTSD?

Given the high alcohol consumption in the UK military, the question must be raised regarding whether high levels of pre-deployment alcohol misuse impact upon the likelihood of developing PTSD following exposure to traumatic events on deployment. In one longitudinal study by Rona et al. (2012a), baseline alcohol misuse was strongly associated with reporting mTBI on subsequent deployments, which in turn was strongly associated with reporting PTSD and alcohol misuse at follow-up. Common mental disorder at baseline was also associated with subsequent mTBI, although this association was less strong. Pre-deployment alcohol misuse was hypothesised to indicate vulnerability for mTBI and subsequent PTSD from the same event. The mechanism of the association, given that alcohol is banned on deployment, was hypothesised to be underlying personality factors or coping styles. Conversely, Rona et al. (2006) concluded that screening for mental health problems

prior to deployment was not predictive of post-deployment PTSD and alcohol misuse scores. However, the authors examined the predictive value *within* categories (i.e. pre- and post-deployment PCL-C scores) rather than *across* categories, and so whether pre-deployment alcohol misuse is predictive of post-deployment PTSD was not addressed.

In summary, there is limited evidence that pre-deployment alcohol misuse indicates vulnerability for post-deployment PTSD and alcohol misuse, although this association appears to be mediated by reporting mTBI on deployment. Screening tools have not yet been developed to confirm this association.

DISCUSSION

This review sought to examine the relationship between alcohol misuse and PTSD among UK military personnel deployed to Iraq and/or Afghanistan. The findings highlight that a clear understanding of such a relationship within this specific population has not yet been established. Four key questions were addressed regarding the prevalence of co-morbid alcohol misuse and PTSD, the impact of alcohol misuse on the long-term maintenance of PTSD, the role of alcohol as a maladaptive method of coping with trauma, and whether pre-deployment alcohol misuse is a vulnerability factor for PTSD.

Prevalence Rates

Findings regarding the prevalence of co-morbid alcohol misuse in deployed personnel with PTSD, based on calculations from published data, are comparable with research from other populations (e.g. Debell et al., 2014), and are higher than in deployed personnel without PTSD. However, methodological difficulties with detecting both PTSD and alcohol misuse were identified which threaten the validity of findings and raise the possibility that these calculated rates may be an underestimation. Although cut-offs and versions of the AUDIT varied across studies,

even the widely accepted '16' cut-off on the AUDIT may lack sensitivity to detect differences in levels of alcohol misuse in the context of such high alcohol consumption in the UK military. 92% of a sample of RN personnel scored as 'hazardous' drinkers on the AUDIT-C, whilst 60% scored as 'high-risk' drinkers (Henderson et al., 2009), and so validation studies are clearly needed to determine the validity of measures in military populations. Conversely, the cut-off '50' on the PCL-C excludes personnel with sub-threshold symptoms who may be 'at-risk', particularly pertinent when considering that sub-threshold symptoms along with increasing alcohol usage was associated with delayed-onset PTSD (Goodwin et al., 2012). Polusny et al. (2011) describe using the 'liberal' PCL-C cut-off '34' to ensure inclusiveness of capturing *all* personnel with PTSD. Furthermore, prevalence data examines the problem at a particular point in time but does not allow for examination of how the problem might *develop*. Consequently, screening tools may wish to monitor for 'at-risk' groups as well as personnel meeting 'caseness'.

Maintenance Hypothesis

Whilst one study found alcohol misuse to be associated with delayed-onset PTSD, the included studies did not examine whether alcohol misuse contributes to the maintenance of symptoms and so it is difficult to draw conclusions about alcohol as a safety-seeking behaviour that maintains symptoms, as described in the cognitive model of PTSD (Ehlers & Clark, 2000). Further research is necessary to understand this relationship, as that there *is* an association is clear from other areas; alcohol misuse and PTSD in the RN are highly correlated (Henderson et al., 2009), and war veterans of Northern Ireland, Bosnia and the Persian Gulf with delayed-onset PTSD were more likely to report alcohol misuse prior to onset (Brewin et al., 2012). Of course, other factors may also be impacting upon the long-term course of PTSD; one prospective study of civilians found that exposure to trauma alone did not predict the subsequent onset of alcohol misuse in both those with and without PTSD (Breslau et al., 2003). Furthermore, impairment in personnel with PTSD and alcohol problems is often related to psychological distress (Rona et al., 2009), and depression reportedly accounts for more distress than PTSD or alcohol problems (Neal et al., 2004). However, if alcohol misuse is a common co-morbidity of PTSD that can impact upon

its long-term course, then the possibility is raised that, although the prevalence of PTSD in the UK military appears low compared with other western militaries, such as the US, the long-term *morbidity* may be greater. Indeed, a study of US veterans found alcohol misuse to be a predictor of PTSD severity (Possemato et al., 2014), and so similar research in the UK military population is recommended.

Coping Hypothesis

The review outlined some, albeit limited, evidence that military personnel use alcohol in place of more adaptive coping mechanisms, although little that confirmed the association with PTSD. However, research examining specific symptoms of PTSD may offer further understanding. For example, symptoms of avoidance and numbing have been associated with the highest level of functional impairment (Rona et al., 2009). Given that avoidance and numbing are related to alcohol misuse in theoretical models of PTSD (Chilcoat & Breslau, 1998; Ehlers & Clark, 2000), personnel displaying severe symptoms within these domains may be more 'at-risk' of using alcohol for coping. Elsewhere, research has suggested that alcohol misuse may be most prevalent where hyper-arousal symptoms are mediating poor distress tolerance (Duranceau et al., 2014), and so research examining beliefs about alcohol as a safety-seeking behaviour in relation to specific PTSD symptomatology is recommended.

The hypothesis that alcohol offers a method of coping with PTSD symptoms is not unfounded; a recent US study of civilians used a prospective daily monitoring design and found that increases in PTSD symptoms were associated with increased alcohol consumption in same day and next day drinking (Simpson et al., 2014). In particular, drinking was higher in individuals reporting high coping motives for drinking (to alleviate negative affect) and low enhancement motives (to achieve positive feelings). Research examining motivations for drinking in UK military personnel may be pertinent; US military personnel reporting PTSD following deployment to Iraq and Afghanistan did not report higher levels of alcohol misuse than personnel without PTSD but instead reported strong coping motives for drinking (McDevitt-Murphy et al., 2015). Levels of consumption did not change but *motivations* for

drinking were different. This is consistent with the use of alcohol in the cognitive model of PTSD (Ehlers & Clark, 2000) and research examining motivations for drinking may offer a more relevant understanding of co-morbidity in UK veterans. This might explain findings such as those by Hooper et al. (2008), who noted that excluding deployed personnel with PTSD had no impact upon alcohol misuse rates.

Vulnerability Hypothesis

There was limited evidence that pre-deployment alcohol misuse might increase vulnerability for post-deployment PTSD as highlighted by the susceptibility hypothesis (Chilcoat & Breslau, 1998), albeit mediated by mTBI on deployment. However, the majority of studies did not consider the contribution of pre-deployment alcohol misuse on post-deployment outcomes, which seems to indicate this is not generally acknowledged to be a contributory factor. Risk factors for PTSD have been extensively studied (e.g. Brewin et al., 2000), and a recent review of combat-related PTSD in military personnel highlighted alcohol to be among the risk factors (Xue et al., 2015), so further research is clearly required to examine this relationship. The UK military has policies in place for managing alcohol misuse (Alcohol Treatment Unit, 2006; RAF Personnel Management Agency, 2006; The British Army, 2006). However, as the benefits of drinking upon unit cohesion are inherently bound within military culture, maintaining a balance between responsible and harmful drinking is undoubtedly challenging, and anecdotal reports suggest that competitive drinking games remain common in the UK military (Fear et al., 2007). Whilst on-going efforts are being made to reduce the stigma of mental health problems, help-seeking for alcohol problems in the UK military is low compared with PTSD (Iversen et al., 2010) and so vulnerability may not be being recognised. Under half of personnel with an alcohol problem perceived having a problem, of whom only 23% sought professional help.

Implementing TLD interventions with a specific focus on alcohol misuse is an encouraging first step to raising awareness (Jones et al., 2013; Mulligan et al., 2012) and is well received by personnel (Jones et al., 2011). However, this review highlighted that PTSD and alcohol misuse may impede one's ability to access more

adaptive support systems post-deployment, even if these are available. Consequently, military efforts may need to focus on pre-emptive approaches if the ability to cope with deployment experiences is affected by strategies that are learned pre-deployment, in line with the susceptibility hypothesis (Chilcoat & Breslau, 1998). Preventative approaches include restricting alcohol availability, increasing the price of alcohol, and promoting other recreational activities to provide more adaptive alternatives (Browne et al., 2008). Such approaches may have widespread benefits for veterans' overall mental health; one study reported that nearly half of UK military personnel with alcohol dependence (AUDIT $\geq$ 20) have a possible psychiatric comorbidity (Rona et al., 2010).

Clinical Implications

Whilst the impact of alcohol misuse on PTSD remains unclear, opportunities for the clinical treatment of co-morbidity are vast. In US veterans, treatment of PTSD with co-morbid substance abuse, including alcohol, was equally beneficial compared to veterans with PTSD but without substance misuse, even with long pre-morbid histories of self-medicating with substances (McDowell & Rodriguez, 2013). Specific psychological treatment approaches have been established for co-morbid PTSD and substance misuse, such as the 'Seeking Safety' programme with its focus on developing alternative coping methods (Najavits, 2004). Timely access to treatment is particularly pertinent given that the association between deployment experiences and post-deployment violence seems to be moderated by PTSD and alcohol misuse (Macmanus et al., 2012; Macmanus et al., 2013), and personnel with comorbidity may present an increasingly vulnerable group.

In order to access treatment, problems with alcohol misuse and PTSD must first be identified. Whilst US veterans attend post-deployment mental health screening programmes run by primary care providers in collaboration with the Department of Defense (Milliken et al., 2007), UK policies largely rely on a 'chain-of-command' detection method, of which the rationale is that those who know personnel can best identify changes in functioning or distress (Hunt et al., 2014). However, the benefits of screening were highlighted following the terrorist bombings in London on 7 July

2005 when, in a 15-month period, 14 individuals with PTSD were referred by GPs for specialist treatment in comparison with 184 individuals identified through special screening programmes (Brewin et al., 2008). Although implementing post-deployment military screening programmes has been recommended (Murrison, 2010) and a recent pilot study indicated that implementing screening within routine and discharge medicals would be easy and effective (Aguirre et al., 2014), the Ministry of Defence has requested evidence using an RCT approach. A further factor may be whether treatment is provided within civilian or military services. US veterans have access to free healthcare for 2-years post-discharge through the Department of Veterans Affairs (Seal et al., 2007) in comparison to lifelong and prioritised free NHS healthcare for UK veterans. However, feeling alienated from civilian life as a consequence of PTSD may be a barrier to accessing NHS treatments (Brewin et al., 2011). Better understanding the possible relationship between alcohol misuse and PTSD may help raise awareness and promote access to treatment.

Limitations

A number of limitations deserve mention. This review incorporated stringent inclusion criteria that led to the exclusion of a number of potentially relevant articles. However, this decision was made to limit the scope for bias from potentially irrelevant findings. Articles were excluded if deployed and non-deployed personnel were not clearly distinguishable within the sample. Non-deployed personnel may have never been deployed or deployed elsewhere, and not distinguishing between locations of military deployment seems illogical; deployment to active warzones is inherently different to peacekeeping or disaster relief operations. Furthermore, narrative reviews can be open to bias and this is a limitation of the selected methodology. A further limitation is that 16 of 19 included papers used data from the KCMHR cohort study, which raises concerns about the impact of multiple comparisons on the same sample. Findings are also limited by the measures used to detect alcohol misuse and PTSD and so results must be interpreted with caution.

Conclusions

This review highlights the lack of clarity within the literature regarding the relationship between alcohol misuse and PTSD in UK military veterans deployed to Iraq and/or Afghanistan. Rather than supporting the contrary, there is simply a concerning absence of literature addressing co-morbidity, an unexpected finding in the context of how widely acknowledged co-morbid alcohol misuse and PTSD is within clinical settings and theoretical models. Although large-scale cross-sectional studies provide highly useful prevalence data, such methodology is less conducive to understanding the mechanisms of whether alcohol misuse *maintains* PTSD. Further research is required utilising appropriate study designs and methodology, with particular consideration to the long-term impact and potential for high levels of morbidity. The consequences of not appropriately addressing this issue may have concerning future implications for the UK military population.

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Service Improvement Project

PSYCHOLOGISTS' PERCEPTIONS OF BARRIERS AND FACILITATORS TO INDEX OFFENCE ASSESSMENT AND FORMULATION WITHIN A MEDIUM SECURE UNIT

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Submission Details

The Journal of Forensic Psychiatry and Psychology was selected as the intended journal for submission because this journal publishes papers on 'mental health, crime and the law'. The journal has a specific focus on research examining psychological knowledge as applied to offenders, which is highly relevant to the focus of this project.

INTRODUCTION

Forensic mental health services offer treatment to offenders in secure settings, focussing on mental health needs and the risk of re-offending (Rice & Harris, 1997). 3,937 offenders were detained in secure psychiatric hospitals in England and Wales in 2008 (Ministry of Justice, 2010), so the need for Psychology in secure settings is high. A core role of Psychologists is assessment and formulation of the Index Offence, defined as the offence leading to the current conviction/hospitalisation, yet this role is not widely acknowledged within the literature. Formulation is particularly pertinent within forensic settings as neither diagnosis nor offence classification provide sufficient insight into the specific factors resulting in the individual's pathway to offending and potentially influencing future risk (Hart et al., 2011).

Index Offence Assessment and Formulation (IOAF) is defined as "the formal and structured examination of the events, circumstances, and behaviours that occurred before, during, and after the last set of criminal actions that brought an offender into contact with the criminal justice system" (West & Greenall, 2011, p. 144). Detailed understanding of factors leading to past offending is necessary to develop knowledge of factors influencing current and future risk. This informs a wide range of decisions about secure mental health care including level of security, access to leave, discharge etc. Although responsibility lies with psychiatry, such psychological knowledge could be integral for section 37/41 orders where Ministry of Justice permission is required for transfer or discharge decisions because of potential risks to the public (Mental Health Act, 1983). However, the process of IOAF that leads to such understanding is often implicit (Hart et al., 2011), so it is unsurprising that Psychologists report difficulties with IOAF.

Difficulties engaging offenders in psychological work are common: barriers include fear of failure and difficulties maintaining relationships (Clarke et al., 2013). Similar barriers may impact upon engagement in IOAF – disclosing details of the Index Offence may elicit shame and fears about consequences of disclosure, such as delaying discharge. However, not engaging in IOAF is problematic as poorly understood risks can delay discharge to lower security, potentially leading to extensive periods of

hospitalisation, institutionalisation and difficulties with rehabilitation (Doyle et al., 2014). The mean length of stay in costly medium secure units (MSU) is increasing (Rutherford & Duggan, 2008), which may reflect increased awareness of long-term risks conflicting with IOAF difficulties.

The Risk-Needs-Responsivity model recommends the input provided to offenders be proportionate to the level of risk and need (Andrews et al., 1990); secure settings are structured according to the level of risk posed by offenders – high, medium and low. Validated risk assessment tools help identify the level of risk, such as the Historical, Clinical, Risk Management 20 tool (HCR-20; e.g. Dernevik et al., 2002; Douglas et al., 1999). However, the scope of such tools is limited as they do not always inform treatment decisions if high levels of risk are identified, whilst low levels may not contraindicate treatment (Large et al., 2013). Further, they may not offer sufficient individualised understanding of service users' (SU) offence pathways to identify tailored treatments. IOAF helps the individual make sense of the specific and unique circumstances that led to offending, providing an understanding of risk beyond that of the HCR-20 (Logan & Johnstone, 2010), which is routinely used by professionals to understand violence risk in the absence of SU involvement.

The shortage of literature on IOAF is surprising given that one objective of secure services is risk reduction: "specialised assessment, treatment, rehabilitation and aftercare services for offenders with mental health problems or those at risk of offending […] with reduction of risk of harm to others" (Department of Health, 2007a, p. 6). Whilst the aims of IOAF are relatively well defined, the *process* is less clear, potentially contributing to difficulties implementing IOAF. The purpose of this project was to examine IOAF within the Men's and Women's services in one MSU, with the following aims:

1) To examine Psychologists' perceptions of the common barriers and facilitators to IOAF.
2) To examine a 'snapshot' sample of the process of engaging individual SUs in IOAF.
3) To offer recommendations for facilitating IOAF.

METHOD

Study Setting

The 80-bed MSU accepts SUs with mental health difficulties who have committed a criminal offence or present with risks beyond the scope of standard psychiatric hospitals. The majority of SUs have committed an offence against the person. The Men's service is a 68-bed facility with seven wards employing six part-time Psychologists (4.5 WTE), whilst the Women's service is a separate 12-bed ward employing three part-time Psychologists (2.8 WTE).

Ethical Approval

Full ethical approval was gained from the University of Bath Psychology Department Ethics Committee (reference 14-132) and the Service Evaluation Department of the NHS Trust responsible for the MSU.

Design

The study consisted of two qualitative components completed independently within the Men's and Women's services:

1) A focus group examining Psychologists' perceptions of common barriers and facilitators to IOAF.
2) A caseload questionnaire examining Psychologists' perceptions of barriers and facilitators to IOAF for individual SUs.

Materials

1) The semi-structured interview schedule (Appendix A), developed to guide focus group discussion, consisted of seven open-ended questions including identifying barriers and facilitators of IOAF.
2) The caseload questionnaire (Appendix B), developed with two points of consultation with the MSU, consisted of 11 closed- and open-ended questions to be completed anonymously for every SU on each clinician's caseload, including SUs for whom the clinician was overseeing care but not actively working with.

Questions included identifying barriers and facilitators to engagement, timescales and outcomes.

Participants

1) Five of six Psychologists participated in the Men's service focus group. Three of three Psychologists participated in the Women's service focus group.
2) Caseload questionnaires were completed by three of six Psychologists from the Men's service and three of three Psychologists from the Women's service.

Procedure

1) Written informed consent was gained prior to participation. Participants were given the questions prior to the focus group to allow reflection time. Focus groups were conducted within the MSU, facilitated by the researcher using the semi-structured interview schedule, audio-recorded and lasted 60-90 minutes.
2) Psychologists were provided with a questionnaire pack containing blank caseload-questionnaires and instructions for completion. Two reminder prompts were delivered via email before the researcher collected questionnaires for analysis.

Analysis

1) Thematic analysis was completed independently for the Men's and Women's services according to the Braun and Clarke (2006) guidelines. Focus group interviews were transcribed verbatim from the audio-recordings. Initial immersion in the data involved repeated readings of each transcript, noting preliminary thoughts and patterns. The coding stage, completed using the computer program 'NVivo' version 10.1.2, identified meaningful segments of data with equal attention given to all data items. Codes were organised into thematic maps containing themes and sub-themes, discarding codes not relevant to the analysis. Themes were reviewed against individually coded extracts of data and the entire dataset and exhaustively collapsed, divided and discarded until the essence of the data was captured. An independent researcher read the transcripts and discussed the representativeness of themes in relation to the data with the first coder until consensus was reached. Finally, detailed analysis of each theme was written with

illustrative quotes.

2) Descriptive statistics and qualitative summaries were used to analyse and compare the data collected from the caseload questionnaire from the Men's and Women's service.

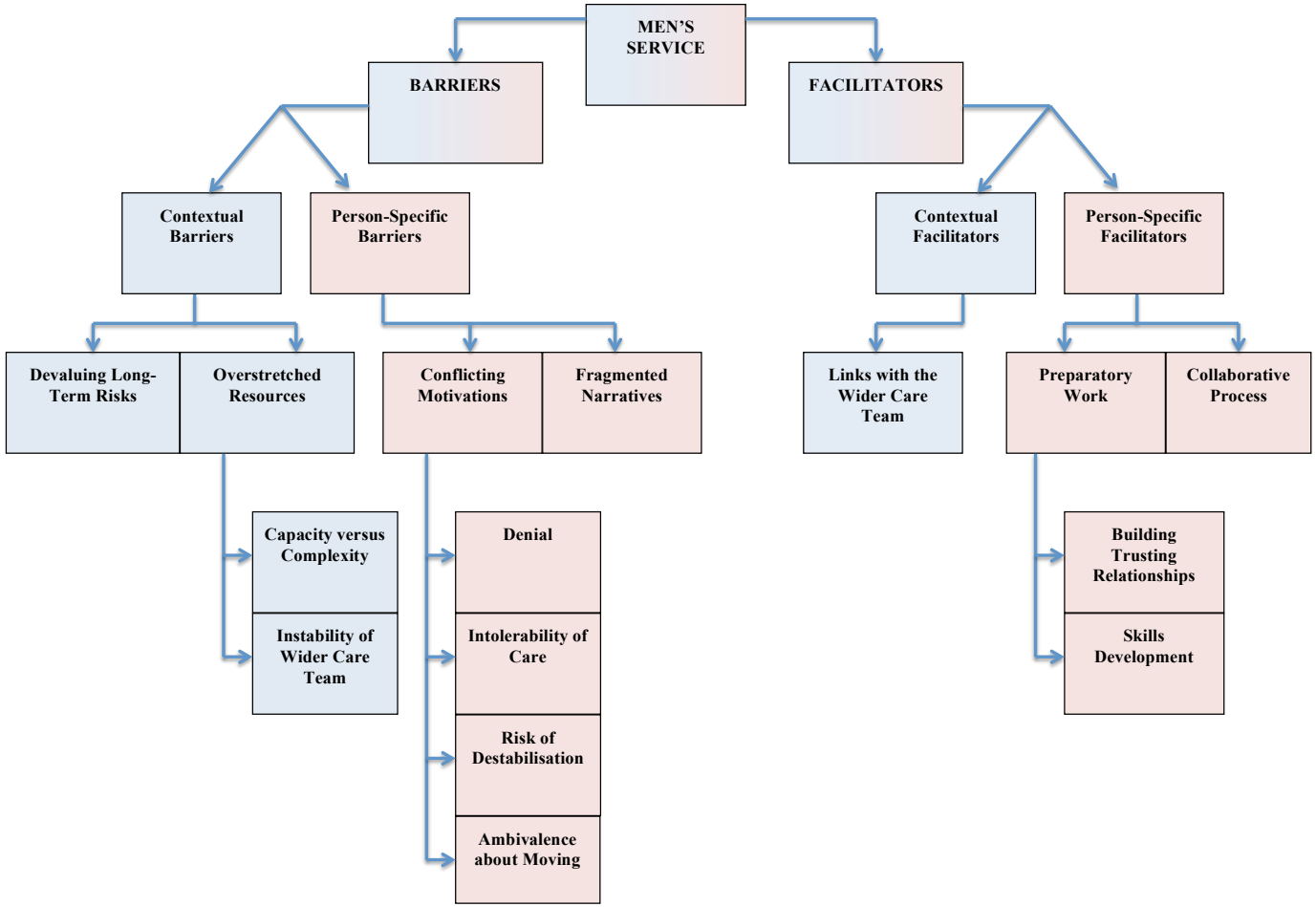

Figure 1. *Men's Service Themes*

RESULTS

Thematic Analysis - Men's Service

Thematic analysis of the content of the focus group within the Men's service identified barriers and facilitators relating to contextual and person-specific factors (Figure 1).

1. Men's Service: Contextual Barriers

Two main themes represented contextual barriers: Devaluing Long-Term Risks and Overstretched Resources.

1.1. Devaluing Long-Term Risks

Psychologists reflected that understanding long-term risks does not consistently hold equal weight with mental health management within the MSU, conveying an implicit message to SUs about the low importance of IOAF. Mental health is one of many factors relevant to understanding long-term risk.

> *"I'll miss a patient clinical review, come back, and find out someone's got leave and I'll think, well, what have they done in the last two weeks that means they're less risky, but it's that focus on stability of mental state rather than kind of more global progress."*

1.2. Overstretched Resources

Two sub-themes were identified: Complexity versus Capacity and Stability of Wider Care Team.

Complexity versus Capacity: The low numbers of Psychologists within the Men's service conflicts with the level of complexity presented by SUs, reducing Psychologists' ability to use clinical time for creative and flexible ways of working that might help engage SUs' in IOAF.

> *"For me to take a couple of hours to go on leave with someone or whatever*

isn't really feasible but for some people that might be the only way they talk about something."

Stability of Wider Care Team: Psychologists' ability to involve the wider care team in IOAF can be limited by the unstable nature of the system. Moving care staff to wards 'in need' can leave other wards with inadequate staffing, creating unpredictability and reducing care staff availability for joint working.

"I tried to do that systemic work and people haven't turned up or haven't been able to turn up for training and actually you get a bit disillusioned and stop doing that indirect working."

SUs might be exposed to conflicting care approaches from care staff lacking awareness of SUs' individual psychological needs as a consequence of this instability.

"If all your [SUs] other interactions with staff go against that [agreed psychological approach to meet SU needs] in terms of the spirit of them or the nature of those interactions, then you [Psychologists] may as well not bother. In fact, it's probably just confusing and counter-productive."

2. Men's Service: Person-Specific Barriers

Two main themes represented person-specific barriers: Conflicting Motivations and Fragmented Narratives.

2.1. Conflicting Motivations

Four subthemes were identified: Denial, Intolerability of Care, Risks of Destabilisation, and Ambivalence about Moving.

Denial*:* Psychologists highlighted SUs denying the Index Offence as a barrier to engagement since agreeing an offence was committed is fundamental to IOAF. Such SUs often feel frustrated at being detained and believe IOAF to be meaningless or incongruent.

"I've worked with people who've violently assaulted people but will say that did not happen so, of course, I do not need to be here […] I just need to be let

out."

Some SUs acknowledge the Index Offence but deny any need for IOAF, believing they will not re-offend and perceiving IOAF as unwarranted.

> *"People feeling that we've not got any right to question the way that they have behaved."*

Intolerability of Care: The perceived caring role of Psychology within a hospital context as opposed to prison can appear intolerable for SUs who believe they deserve punishment. Perceiving IOAF as an empathic process creates conflict for these SUs in the context of the 'awfulness' of the Index Offence. SUs' seeking punishment and detention may not be motivated to work through IOAF towards discharge.

> *"Them saying, 'I deserve to be here, I need to be here for a really long time'. So the idea of doing some process which is about understanding so you can move on is…"*

Ambivalence about Moving: Psychologists highlighted that the safety of the environment may be novel for some SUs, for whom ambivalence about returning to the instability of life outside secure care creates conflict between engaging in IOAF and the undesired goal of moving towards discharge.

> *"Those people might even say 'I want to move on I want to get out' but actually kind of the factors that really motivate them are just to be cared for and here is the most cared for place they've ever been."*

Risks of Destabilisation: Psychologists reflected that IOAF is accurately perceived by many SUs as a potential source of destabilization; self-harm/suicidal thoughts can increase during IOAF and the work often invokes aversive feelings such as shame and anger. Consequently, IOAF becomes a source of fear and avoidance is protective.

> *"It's so traumatising and I guess sometimes people need quite a bit of time to actually come to terms with what they've done before they can even think about starting some of that work."*

2.2. Fragmented Narratives

Psychologists noted memory and communication difficulties affect SUs' ability to engage in IOAF: substance/alcohol misuse or acute mental health difficulties at the time of the Index Offence may have impaired encoding or consolidation of memories, whilst head injury or neuro-developmental disorders affect accurate retrieval and communication.

> *"If they were very acutely unwell at the time their ability to er recall […] who people were and what they said, what they did in response, what they felt at the time. Might be really hard for them to access that."*

The problem is exacerbated if SUs' files contain little historical data to counteract the impact of fragmented narratives.

> *"There might not be other good accounts. They might have been very isolated. There might be real lack of kind of quality information to build that information."*

3. Men's Service: Contextual Facilitators

One main theme represented contextual facilitators: Links with the Wider Care Team.

3.1. Links with the Wider Care Team

Psychologists highlighted that involving the wider care team wherever possible in IOAF facilitates keeping long-term risk on the agenda.

> *"Actually just being in regular review meetings and making sure that both the rest of the team and the individual keep that in their minds."*

This gives the wider care team a sense that Psychology is holding the risks presented by SUs, leads to more proactive decision-making and conveys an implicit message to SUs about the value in IOAF.

> *"When we do it I think teams are, feel much more confident about taking proactive risk and moving people forward […]. They [SUs] do sometimes get a very clear message that this piece of work is really important to that."*

4. Men's Service: Person-Specific Facilitators

Two main themes represented person-specific facilitators: Preparatory Work and Collaborative Process.

4.1. Preparatory Work

Two sub-themes were identified: Therapeutic Alliance and Skills Development.

Therapeutic Alliance: Psychologists spoke about the value of taking time to build trust and establish therapeutic relationships with SUs prior to IOAF.

> *"Allowing people the opportunity to build trusting relationships […] creates, you know, the best chance that you're going to be able to explore stuff where there are psychological barriers involving mistrust, paranoia, shame."*

Some SUs struggle to think about their Index Offence outside the context of their own experiences of trauma and injustice, so acknowledging this aspect of SUs can be integral to creating the therapeutic alliance necessary to engagement in IOAF.

> *"The SUs seem to find it easier to begin the Index Offence work if you start with how it's affected them rather than straight in to […] you know their perpetrator role and risk management."*

Skills Development: Psychologists spoke about the importance of developing SUs' emotion regulation skills to prepare them for IOAF.

> *"What kind of preparatory work somebody would need to do before they can even get to that piece of work, and sometimes that isn't even psychology […] there can be all kinds of work that someone might do that would make it easier."*

This process can give Psychologists insight into barriers that could arise during IOAF and to adjust the process appropriately.

> *"A good clinical working knowledge of the service user is really good, and knowing what the impact might be when engaging this piece of work."*

4.2. Collaborative Process

Psychologists highlighted the importance of collaboratively agreeing the process of

IOAF with SUs. Such clarity is most effective as a facilitator if SUs' personal goals are aligned with those of IOAF.

> *"It's self interest things I think you often have to work with. Yeah, if your goal is to leave and move in to the community then here's a plan how you can do that."*

Giving some choice and control over the process of IOAF facilitates engagement, including how to begin and when to focus on traumatic topics.

> *"I'm being quite transparent from the beginning that one of the things we [...] will need to talk about is the offending, but that might be one of the things we get to later."*

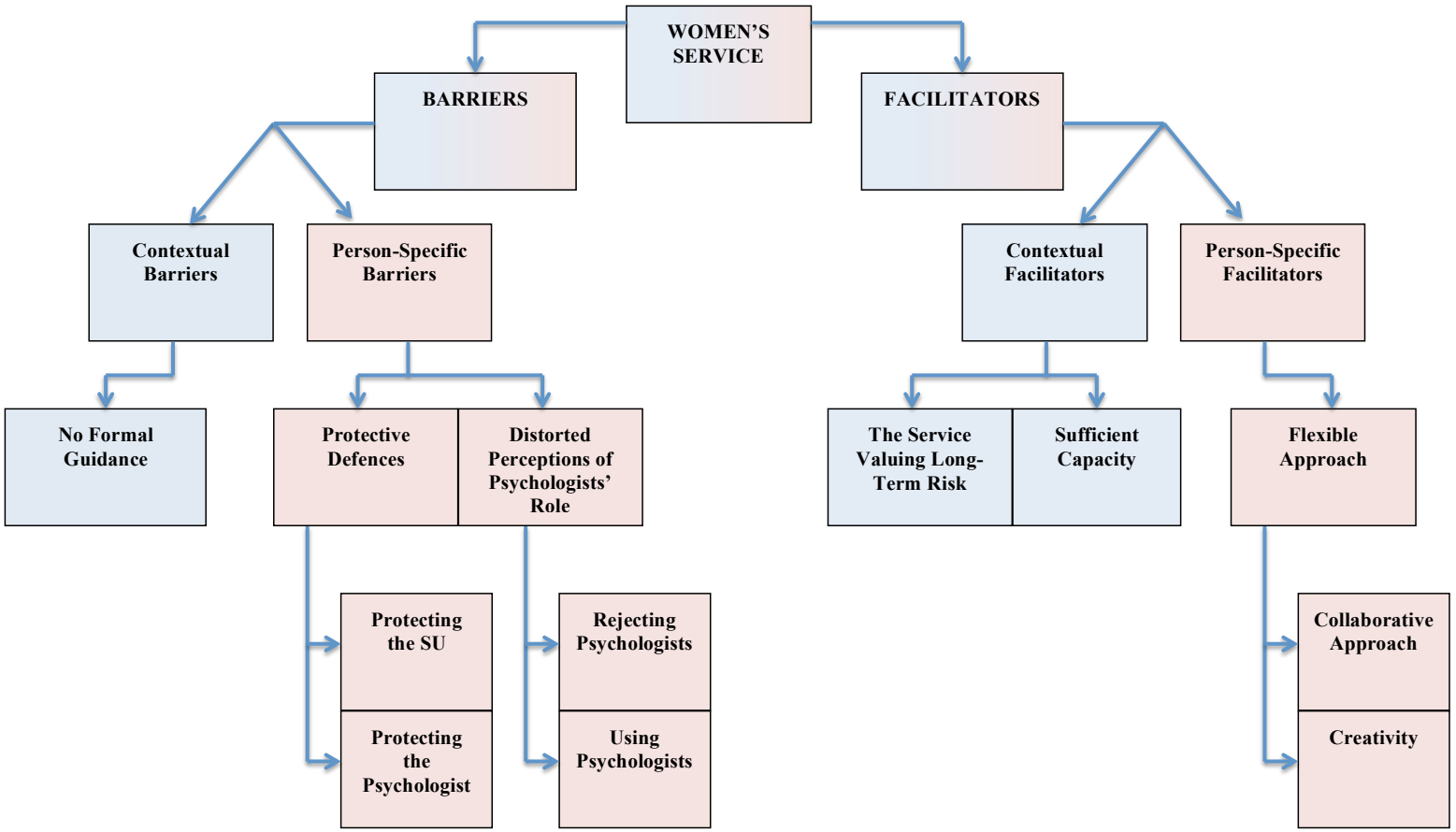

Figure 2. *Women's Service Themes*

Thematic Analysis: Women's Service

Thematic analysis of the content of the focus group within the Women's service identified barriers and facilitators within contextual and person-specific domains (Figure 2).

5. Women's Service: Contextual Barriers

One main theme represented contextual barriers: No Formal Guidance.

5.1. No Formal Guidance

Psychologists spoke about the lack of formal service guidance and published literature on IOAF, a problem for new Psychologists joining the service in knowing how to navigate IOAF.

> *"When I first came here I asked loads of people how to do it. I don't think anyone talked about it."*

Building guidelines for IOAF is problematic because of the variability of the process across SUs and the lack of a structured 'formula'.

> *"Everyone wants to know what the magic secret ingredient is and there isn't one. It's just a complex process of deciding what your focus is, you know, does it matter if they do or don't do it."*

6. Women's Service: Person-Specific Barriers

Two main themes represented person-specific barriers: Protective Defences and Distorted Perceptions of Psychologists' Role.

6.1. Protective Defences

Two sub-themes were identified: Protecting the SU and Protecting the Psychologist.

Protecting the SU: Psychologists reflected that some SUs hold engrained, protective defences against the trauma of their Index Offence, often concealing an internal

conflict between beliefs about being an offender and being a woman. Such SUs might lack motivation to engage in IOAF, fearing that removing these barriers will irreparably damage their sense of self.

> *"Women are seen as doubly bad and doubly dangerous and doubly shaming and we find it that women are much more able to connect to their victimhood than their perpetratorhood."*

Psychologists highlighted that removing these defences is not always beneficial for SUs.

> *"You can't just hold up a mirror and say this is what happened, this is what you did, you need to confront this. Because you might be doing much more damage."*

Protecting the Psychologist: Psychologists spoke about finding it challenging to hear details of SUs' Index Offences, sometimes manifesting as an underlying avoidance of this aspect of IOAF to protect themselves against vicarious traumatisation, for example, dreaming about victims of offences.

> *"It's really hard for us to think about the victims and to be willing to go in the room and hear about how they died."*

6.2. Distorted Perception of Psychologists' Role

Two sub-themes were identified: Rejecting Psychologists and 'Using' Psychologists.

Rejecting Psychologists: Psychologists reflected that linking IOAF directly with care pathways can leave some SUs feeling frustrated with Psychology at their lack of care pathway progression, which can damage the therapeutic relationship so necessary for engagement in IOAF to enable care pathway progression.

> *"And then we contain all of the frustration, you know, of being detained then and that's the danger isn't it. Which doesn't make for a good therapeutic alliance."*

'Using' Psychologists: Psychologists highlighted that whilst some SUs appear to engage in IOAF, this is solely for care pathway progression rather than fully engaging with and benefiting from the process.

"You could go through all the steps and come out the other end having done it but really noticing lots of limitations in terms of their ability in the reducing of risk, you know, their ability to really reflect on it."

7. Women's Service: Contextual Facilitators

Two main themes represented contextual facilitators: The Service Valuing Long-Term Risk and Sufficient Capacity.

7.1. The Service Valuing Long-Term Risk

Psychologists spoke about the importance placed on Psychology within the Women's service in understanding long-term risk; the wider care team understanding and valuing this role is integral to implementing IOAF.

"The team as a team believe that that is really important and would feel very uncomfortable about somebody moving on without having done, touched even, the Index Offence in any way."

Explicitly linking IOAF with SUs' care pathways is effective in ensuring that those SUs for whom risk is poorly understood do not progress down their care pathway to lower secure settings, thereby maintaining perceptions of the necessity of IOAF.

"There have been people we haven't been able to work with [in IOAF], but that hasn't impacted upon their care pathway because they might have gone into another MSU or they might have gone up in security."

7.2. Sufficient Capacity

The Women's service has the capacity to provide every SU with an assigned Psychologist from admission, facilitating the development of stable and trusting therapeutic relationships as a solid base for engaging in IOAF.

"We have assigned Psychologists so from when the person comes in they build a relationship with their Psychologist. [...] With such challenging [...] topics, having that therapeutic relationship is massively important."

8. Women's Service: Person-Specific Facilitators

One main theme represented person-specific facilitators: Flexible Approach.

8.1. Flexible Approach

Two sub-themes were identified: Collaborative Process and Creativity.

Collaborative Process: Psychologists highlighted that collaboratively agreeing the process of IOAF with SUs facilitates engagement. Negotiating timescales, mini-goals and any limitations of the work helps SUs feel safer about engaging in IOAF.

> *"Sometimes I give them a timetable and I say when do you want holiday and they say, 'Oh after we've done index offence that session where I'm talking about the index offence I want two weeks off.' Alright then."*

Creativity: Psychologists spoke about using creative and tailored approaches to engage SUs in IOAF, helping to overcome feelings of shame in disclosing details of the Index Offence or other contextual events.

> *"We play mastermind games sometimes. […] Helps to get rid of the sense that I'm asking a question because I have got a specific agenda and, you know, putting a judgement on it."*

Caseload Data: Men's and Women's Services

9. Total Data Set

Questionnaire data was collected for 22 male SUs from three Men's service clinician's caseloads (n=4, n=13, n=5), representing 32% of the total male beds, and 12 female SUs from three Women's service clinician's caseloads (n=3, n=4, n=5), representing 100% of the total female beds. 86% (n=19) of male SUs were reported as appropriate for IOAF (see Table 1 for exclusions), whilst 100% (n=12) of female SUs were appropriate.

Table 1. *Reasons for exclusion from IOAF*

Exclusions from IOAF	**Men's Service (n=3)** n (%)
Temporary prison transfers to treat acute mental health needs	2 (67%)
Assessment in MSU whilst awaiting sentencing only	1 (33%)

10. Barriers

The proportion of non-engagement in IOAF was 37% (n=7) of the 'appropriate' male SUs and 25% (n=3) of the 12 'appropriate' female SUs. Notably, 33% (n=1) of these female SUs had completed IOAF elsewhere. Reasons for not engaging in IOAF within each service are outlined in Table 2 and highlight the diversity of barriers.

Table 2. *Barriers to Engagement in Men's Service and Women's Service*

Theme	**Barriers to Engagement**[a]	**Men's Service (n=7),** n (%)	**Women's Service (n=3),** n (%)
Stability	Acute mental health symptomatology	3 (43%)	2 (67%)
	High risk of violence to clinician	2 (29%)	2 (67%)
	High risk of destabilisation	1 (14%)	0 (0%)
	Poor emotion regulation	0 (0%)	1 (33%)
Practical	Cognitive impairment	2 (29%)	1 (33%)
	Memory impairment	1 (14%)	0 (0%)
	Language difficulties	1 (14%)	0 (0%)
Cognitive	Denial of offence	1 (14%)	0 (0%)
	Rejection of care approach	0 (0%)	1 (33%)
Relating	Intensity of therapeutic relationship	1 (14%)	2 (67%)
Traits	Avoidant Personality	1 (14%)	0 (0%)
	Low impulse-control	0 (0%)	1 (33%)
Physical	Fatigue	0 (0%)	1 (33%)

[a] *More than one barrier may be relevant to each SU.*

11. Facilitators

The proportion of engagement in IOAF was 63% (n=12) of the 'appropriate' male SUs and 75% (n=9) of the 'appropriate' female SUs. Of these, 33% (n=4) of male SUs and 22% (n=2) of female SUs had completed IOAF elsewhere. The wide array of identified facilitators to engagement are summarised in Table 3.

Table 3. *Facilitators to Engagement in the Men's Service and Women's Service*

Theme	**Facilitators to Engagement**[a]	**Men's Service (n=12),** n (%)	**Women's Service (n=9),** n (%)
Staff Support	Supporting the value of IOAF	1 (8%)	3 (33%)
	Agreed links with care pathway progression	0 (0%)	3 (33%)
	Supporting length of IOAF	1 (8%)	0 (0%)
	Attendance at team meetings	1 (8%)	1 (11%)
	Involving staff in support plan	1 (8%)	5 (56%)
Therapeutic Relationship	Developing therapeutic relationship prior to IOAF	2 (17%)	3 (33%)
	Focus on maintaining therapeutic relationship	1 (8%)	1 (11%)
	Normalising experiences to overcome stigma/shame	0 (0%)	2 (2%)
Emotional Preparation	Emotion regulation skills development	1 (8%)	0 (0%)
Clarity and Control	Agreement about content of IOAF	1 (8%)	2 (22%)
	Agreement about goals of IOAF	1 (8%)	3 (33%)
	Collaborative agenda setting	1 (8%)	0 (0%)
	Frequent feedback from SU	1 (8%)	0 (0%)
	Agreement of pace of IOAF	2 (17%)	0 (0%)
Flexibility	Time and patience	1 (8%)	1 (11%)
	Flexible session location	1 (8%)	0 (0%)
	Flexible session length	1 (8%)	1 (11%)
	Reduced intensity of work	0 (0%)	2 (22%)
	Minimising expectations	0 (0%)	1 (11%)
Specific Methodology	Visual materials	1 (8%)	1 (11%)
	Systemic approach	1 (8%)	0 (0%)
	File review	1 (8%)	1 (11%)
Supervision	To reflect on interpersonal dynamics between clinician and SU.	1 (8%)	0 (0%)
	To reflect on interpersonal dynamics between SU and wider care team	1 (8%)	0 (0%)
Mental State	Stable emotional and mental state	1 (8%)	0 (0%)
Cognition	Sufficient cognitive skills	0 (0%)	1 (11%)
Motivation	SU motivation to engage at onset	1 (8%)	2 (22%)

[a] *More than one facilitator may be relevant to each SU.*

12. Resources

Specifically relevant for both services was identifying whether any resources were particularly useful to facilitate the process of IOAF. The wide-array of resources reported within both services highlighted the diversity of IOAF (Table 4).

Table 4. *Useful IOAF resources reported by the Men's and Women's Services*

Psychological Resource[a]	**Men's Service (n=12),** n (%)	**Women's Service (n=9),** n (%)
OFFENCE-SPECIFIC MEASURES		
HCR-20	2 (17%)	1 (11%)
Risk of Sexual Violence Protocol	2 (17%)	0 (0%)
Sex Offenders Assessment Package	2 (17%)	0 (0%)
Arson Assessment	1 (8%)	0 (0%)
Fire Interest Rating Scale	0 (0%)	2 (22%)
GENERAL PSYCHOLOGICAL MEASURES		
Millon Clinical Multiaxial Inventory-III	2 (17%)	7 (78%)
State-Trait Anger Expression Inventory	0 (0%)	6 (67%)
Personality Assessment Inventory	3 (25%)	2 (22%)
Psychopathy Checklist – Revised	2 (17%)	0 (0%)
Young Schema Questionnaire	1 (8%)	3 (33%)
Paulhus Deception Scales	1 (8%)	2 (22%)
Gudjonsson's Blame Attribution Inventory	1 (8%)	0 (0%)
Psychosexual Assessment	1 (8%)	0 (0%)
Relationship Questionnaire	0 (0%)	2 (22%)
Dissociation Questionnaire	0 (0%)	2 (22%)
Assessment of Post-Traumatic Sequelae	0 (0%)	1 (11%)
Beck Depression Inventory	0 (0%)	1 (11%)
Beck Anxiety Inventory	0 (0%)	1 (11%)
Symptom Checklist-90	0 (0%)	1 (11%)
Multidimensional Self-Esteem Inventory	0 (0%)	1 (11%)
The Inventory of Altered Self-Capacities	0 (0%)	1 (11%)
Attachment Style Interview	0 (0%)	1 (11%)
COGNITIVE ASSESSMENT		
Behavioural Assessment of Dysexecutive Syndrome	0 (0%)	5 (56%)
Weschler Adult Intelligence Scale Fourth Edition	0 (0%)	4 (44%)
Weschler Memory Scale Fourth Edition	0 (0%)	4 (44%)
Hayling & Brixton	0 (0%)	2 (22%)
Test of pre-morbid functioning	0 (0%)	1 (11%)
METHODOLOGICAL APPROACHES		
Timeline of antecedents	0 (0%)	3 (33%)
Visual formulation diagrams/pictures	1 (8%)	3 (33%)
Visual diagram of care pathway-IOAF links	0 (0%)	1 (11%)
ABC tables	0 (0%)	1 (11%)
Health and safety expert presentation on fire	0 (0%)	1 (11%)
3rd party accounts of offence and background	1 (8%)	0 (0%)
File review	1 (8%)	0 (0%)

[a] *More than one resource may be relevant to each SU.*

13. Timescales

Both services wanted to establish timescales for completion of IOAF for SUs who engaged. Within the Men's service, timescales ranged between three and 24 months, the modal being six months. Timescales in the Women's service ranged between two and 18 months, and the modal was three months.

14. Outcomes

For SUs who engaged in IOAF, the most common outcomes reported in both services were identifying risk reduction plans and increased understanding of the Index Offence for the SU and wider care team (Table 5).

Table 5. *Outcomes of IOAF in the Men's Service and Women's Service*

Theme	**Specific Outcome of IOAF[a]**	**Men's Service (n=12),** n (%)	**Women's Service (n=9),** n (%)
Risk Management	Identified risk reduction plan for SU	3 (25%)	5 (56%)
	Identified risk management plan for staff	1 (8%)	1 (11%)
Informing Care Pathways	Informed specific risk-decisions, e.g. access to a lighter	0 (0%)	1 (11%)
	Informed leave decisions	1 (8%)	2 (22%)
	Informed discharge decisions	1 (8%)	3 (33%)
	Identified future community needs	1 (8%)	0 (0%)
Informing Treatment	Identifying priorities for targeting high-risk factors in treatment	2 (17%)	2 (22%)
	Identifying capacity to engage in treatment	1 (8%)	4 (44%)
Insight and Understanding	Increased SU understanding of Index Offence	3 (25%)	2 (22%)
	Increased wider care team understanding of risk in all contexts	1 (8%)	4 (44%)
	Reduction in delusional beliefs	1 (8%)	1 (11%)
Emotional Well-being	SU gained coping strategies	2 (17%)	1 (11%)
	SU reports feeling like a "whole person"	0 (0%)	1 (11%)
	Increased SU sense of responsibility and reduced self-blame	0 (0%)	1 (11%)
	Increased SU confidence in ability to not re-offend	0 (0%)	1 (11%)
	Increased SU sense of achievement at achieving goal	0 (0%)	1 (11%)
	Increased SU self-acceptance	1 (8%)	0 (0%)
	Developed relationship-building skills	1 (8%)	0 (0%)

[a] *More than one outcome may be relevant to each SU.*

DISCUSSION

This project examined Psychologists' perceptions of barriers and facilitators to IOAF within the Men's and Women's services in one MSU. The findings highlighted two main areas pertinent to IOAF: the organisational context and person-specific factors. The impact of the organisational context on IOAF was clear: the Men's service highlighted resource issues and the service de-valuing long-term risks as barriers, while the converse were facilitators in the Women's service. Person-specific barriers appeared relatively similar across services: the trauma of the Index Offence impacted upon SUs' motivation to engage in IOAF. Offering clarity, choice and creativity were highlighted as facilitators to engagement in both services, although the Women's service reported more scope for implementing these within the organisational context. Examination of the 'snapshot' sample revealed slightly lower rates of engagement and longer timescales for IOAF within the Men's service, although both services reported wide variation in barriers and facilitators to IOAF. The findings and recommendations (Table 6) were presented to the Psychology Department in the MSU, and feedback was positive: *"as a service we find the recommendations clear, useful and highly relevant"* (full details in Appendix D). Following this, the service outlined future plans to implement "*a more explicit framework around IOAF"* which they anticipate will *"fit well within the overall framework we are developing for mental health oriented and risk related interventions across people's care pathways"*. The service also plans to "*develop opportunities for sharing ideas between the Men's and Women's services"*.

Table 6. *Recommendations for Implementing Change*

	Develop an Evidence-Base for IOAF	
1.	**Framework for IOAF**	It may be of benefit to produce a written framework for IOAF spanning both the Men's and Women's services within the MSU that provides a clear definition of the work, outlines the internal and external factors necessary for engagement, defines the process of IOAF and what engagement would involve, provides clarity on the outcomes and details how this links to care pathways, and demonstrates organisational commitment. An example framework was developed that was based on the Multifactor Offender Readiness Model (Ward et al, 2004; Tetley et al, 2012) and incorporated the findings of this project (Appendix C). Developing a similar framework using formal research methodology may be necessary to ensure empirical grounding.
2.	**Database and Audits**	It may be of benefit to continue collecting data on IOAF in both the Men's and Women's services, which could be completed using the caseload questionnaire, and to complete regular audits of this data to monitor the barriers, facilitators and overall implementation of IOAF within the MSU. This might help identify patterns or changes over time.
3.	**Information Sharing**	It may be of benefit to consider introducing a forum for Psychologists from the Men's and Women's services to share knowledge and experiences of IOAF.
4.	**Research Projects**	Commission long-term research projects to evaluate the process of IOAF in order to build the evidence-base and to gain further insight into barriers, facilitators and outcomes.
	Address Resource Concerns	
5.	**Psychology Resources**	Ensure the numbers of Psychologists within the Men's service meet the minimum recommendation of one whole time equivalent Psychologist per 'typical unit' of 10-12 beds (Royal College of Psychiatrists, 2007).
6.	**Wider Care Team Resources**	Ensure the number of care staff within the Men's service meets the minimum recommendation that the number of nursing staff is sufficient to meet the needs of all patients on the unit at all times (Royal College of Psychiatrists, 2007).
7.	**Psychology Supervision**	Ensure that Psychologists in both services have on-going access to supervision and other support systems in order to continue to sustain the emotional impact of IOAF and to consider the inter-personal dynamics within the therapeutic relationship with SUs.
	Improve the Clarity of IOAF	
8.	**Wider Care Team Understanding**	A further Service Improvement Project could be to evaluate perspectives of the wider care team within both services to ascertain their understanding of IOAF. This may be particularly pertinent within the Men's service to identify gaps in knowledge or specific training needs which may increase opportunities for joint working and impact upon the environment for SUs.
9.	**Service User Information Leaflet**	It may be of benefit to tailor current SU information leaflets to incorporate information specific to IOAF, giving clarity on the purpose, process, timescales and collaborative/flexible nature of IOAF. Normalising common concerns of SUs might also be helpful. A further Service Improvement Project could be to develop and evaluate the usefulness of this information.

The project highlighted the diversity of barriers to IOAF encompassing both contextual and person-specific domains, which indicates the need to establish a framework for IOAF; better identification and awareness of barriers is the first step to facilitating engagement (Ward et al., 2004). A useful concept is 'treatment readiness', defined as the presence of characteristics within the SU or therapeutic context that promote engagement and impact outcomes (Howells & Day, 2003). Relevant frameworks already exist within forensic settings; the Multifactor Offender Readiness Model (MORM; Ward et al., 2004) outlines internal (e.g. cognition, affect and behaviour) and external factors (e.g. resources, location and timing) impacting upon engagement in psychological treatment. Although the evidence-base of psychological measures drawing on the MORM is limited (Mossière & Serin, 2014; Sheldon et al., 2010), the framework was recently adapted for specific populations using Delphi methodology (Tetley et al., 2012), so adapting this framework for IOAF within the MSU may be beneficial (see Appendix C for example). It was recommended that the service explore and evaluate the usefulness of such a framework. Research is needed to define the process of IOAF and evidence any consequent consistency in risk decisions, enabling the integration of IOAF into care pathways. Given the benefits of aligning IOAF with care pathways in the Women's service, establishing clear care pathways in the Men's service may be integral.

Although Psychologists in the MSU highlighted a number of beneficial outcomes for SUs who engage in IOAF, such as improving emotional well-being, there is a concerning absence of evidence in the wider literature examining the effectiveness of IOAF in reaching such outcomes. Without a supporting evidence-base, demonstrating the benefits of engagement in IOAF to both SUs and the wider care team may be problematic and difficulties could impact upon Psychologists' motivation to complete IOAF in the face of the aforementioned challenges. Consequently, a recommendation to the service was commissioning research projects to examine the effectiveness of IOAF in reaching desired outcomes.

The level of staffing was raised as relevant for IOAF; the perceived availability and accessibility of clinicians is integral to the therapeutic relationship (MacInnes et al., 2014). Poor availability or accessibility can be interpreted by SUs as disinterest (Johansson et al., 2007). Current staffing within the Men's service is below

recommended levels (Royal College of Psychiatrists, 2007, 2014), yet adequate resourcing is pertinent given the recommendation that mental health services should "provide services that meet the needs of SUs and their carers and make efficient use of resources" (Department of Health, 2007b, p. 14). The benefits of increasing staffing within the Men's service are probable given the successes of the well-resourced Women's service.

Psychologists highlighted therapeutic alliance as a fundamental facilitator for SU engagement in IOAF. In clinical settings, therapeutic alliance encompasses the level of collaboration, agreement of therapeutic goals and affective bond between clinician and SU (Gaston, 1990), and is associated with treatment outcome (Martin et al., 2000). Within secure settings, the concept is known as 'relational security', defined as the "therapeutic alliance between staff and patients centred in continuing risk assessment and detailed knowledge of the patient" (Department of Health, 2007a, p. 11), and was recently associated with service satisfaction (MacInnes et al., 2014), so this project supports evidence highlighting the benefits of therapeutic alliance within MSUs. Supervision may be imperative to recognising problematic interpersonal dynamics impacting upon the therapeutic relationship (Ackerman & Hilsenroth, 2003), so maintaining supervision is an essential recommendation. Receiving adequate information and feeling respected and well-regarded by staff are pertinent to building therapeutic relationships in MSUs (MacInnes et al., 2014); offering clarity and choice within IOAF were highlighted as facilitating engagement and the recommendation of providing written information may ensure consistency of approach.

At the time of data collection, the Men's and Women's services were separate provisions in the MSU with little information shared. Although men represent a larger proportion of admissions to secure services (Nicholls et al., 2009), the comparative level of risk posed by women is often underestimated (e.g. Nicholls et al., 2004; Skeem et al., 2005). The findings from this project highlight that IOAF is relevant to both genders: whilst the organisational context differed, person-specific factors appeared relatively similar across genders, although further research is needed. Ultimately, this highlights the importance of sharing information across Men's and Women's services.

Limitations

A number of limitations require mention. Whilst thematic analysis offers a richness of data useful within exploratory projects and an established framework was followed, reliability was limited by the scope of interpretation within qualitative analysis. Agreeing themes with an independent researcher increased reliability, although a more robust approach would have incorporated independent coding of the transcripts. Similarly, the questionnaire design incorporated open-ended questions that may have increased the scope of interpretation by respondents and impacted on reliability. The small sample size and cross-sectional design affects the validity of findings and limits the extent to which generalisations can be made. Increasing focus group length, using a longitudinal design and increasing the sample size may increase validity. Finally, response rates for the caseload questionnaire were poor and a more robust approach may have involved verbal rather than electronic prompts.

Conclusions

This project identified that both the organisational context and factors internal to SUs impact upon IOAF. Recommendations for facilitating the implementation of IOAF in the MSU were outlined: establishing a standardised framework for IOAF and increasing communication between services were most relevant. Clear care pathways that incorporate IOAF are required and future research defining the process of IOAF and evaluating its effectiveness in relation to the desired outcomes will provide a more robust evidence-base and ensure consistency of approach. This is an important task: better understanding of long-term risks through IOAF benefits both the SU and the wider public.

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Main Research Project

THE ROLE OF SELF-FOCUSSED ATTENTION IN SOCIAL ANXIETY IN INDIVIDUALS WITH HIGH-FUNCTIONING AUTISM SPECTRUM DISORDER

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Submission Details

The journal Autism was selected as the intended journal for submission because this journal publishes research of "direct and practical relevance to help improve the quality of life" of individuals with autism. This includes research examining psychological processes and interventions for people with autism, which is highly relevant to the focus of this project.

INTRODUCTION

Social anxiety is one of the most common anxiety disorders in adolescents, both typically-developing and with autism spectrum disorder (ASD, Costello et al., 2011; White et al., 2009). However, social anxiety is more prevalent in adolescents with ASD than without (Bellini, 2004). The disorder is defined by intense anxiety or fear about entering social situations where the individual fears negative evaluation from others and consequently avoids social situations (APA, 2013). Whilst the cognitive model of social anxiety has a well-established evidence-base for typically-developing individuals (Clark & Wells, 1995), its applicability for individuals with ASD is unclear.

The Diagnostic and Statistical Manual of Mental Disorders specifies that symptoms of social anxiety must not be better explained by ASD (APA, 2013); overlapping symptoms make diagnosis problematic. ASD is a neurodevelopmental disorder defined by persistent deficits in social communication and interaction, and restricted and repetitive patterns of behaviour, interests or activities (APA, 2013). Social deficits affect conversational turn-taking, non-verbal communication and establishing and maintaining relationships (APA, 2013). Individuals with high-functioning ASD are more at risk of co-morbid anxiety and depression than the general population (Kim et al., 2000). Although the higher prevalence of social anxiety in individuals with ASD could be confounded by symptom overlap, removing questions about overlapping symptoms from questionnaires assessing social anxiety does not alter rates (Kuusikko et al., 2008).

The developmental pathways model of social anxiety outlines that children with ASD have a temperament marked by high physiological arousal that can be difficult to regulate and are consequently vulnerable to developing social anxiety following negative social interactions, which are more likely given reported social skills deficits associated with ASD (Bellini, 2006). Difficulties coping with physiological arousal can lead to withdrawal, reducing opportunities for social skills development and maintaining the problem. Social skills training plus relaxation is the indicated

treatment (Bellini, 2004) with some success (e.g. Laugeson et al., 2009; Schohl et al., 2014).

Although social anxiety in typically-developing individuals was previously thought to be related primarily to social skills deficits, an influential study found that adolescents with high social anxiety (HSA) rated their performance more negatively than observers, whereas adolescents with low social anxiety (LSA) demonstrated no such difference (Cartwright-Hatton et al., 2003; Cartwright-Hatton et al., 2005), suggesting an individual's *beliefs* about their social skills are more relevant to social anxiety than *objective* social skills. Recently, this study was repeated in adolescents with ASD, with findings consistent with typically-developing individuals (Wood, 2014, *unpublished*). This questions the primary relationship of social skills deficits with social anxiety in individuals with ASD.

The cognitive model of social anxiety focuses on the role of distorted beliefs (Clark & Wells, 1995), and has become the dominant treatment model in typically-developing individuals with good treatment outcomes (NICE, 2013) and an empirically-grounded evidence-base (Clark, 2001). The model postulates that individuals with social anxiety develop negative self-beliefs, high standards for social performance and catastrophic beliefs about failure. On entering a social situation, the focus of attention shifts from others to the self to monitor social performance; internal information obtained via self-focussed attention (SFA) is used to create an image of how oneself is perceived by others, often disproportionately negative and based on emotions rather than reality (e.g. 'I *feel* anxious therefore I must *look* anxious'). SFA reduces attendance to positive feedback from others (e.g. Hope et al., 1990; Pozo et al., 1999), preventing disconfirmation of negative self-beliefs.

SFA is defined as "an awareness of self-referent, internally generated information that stands in contrast to an awareness of externally generated information derived through sensory receptors" (Ingram, 1990, p. 156) and is associated with anxiety and depression (Mor & Winquist, 2002). Evidence supports the role of SFA in maintaining negative performance beliefs in typically-developing individuals with social anxiety (Spurr & Stopa, 2002), with clear treatment implications (Bögels &

Mansell, 2004). For example, HSA individuals reported higher levels of SFA and physiological sensations than LSA individuals during a social situation (Mellings & Alden, 2000). Physiological sensations were positively correlated with overestimating negative aspects of social performance amongst HSA but not LSA individuals (Mansell & Clark, 1999). HSA individuals holding in mind an observer-perspective image of themselves noticed more physiological sensations and perceived their performance more negatively than LSA individuals (Makkar & Grisham, 2011; Vassilopoulos, 2005). Finally, the level of physiological sensations between HSA and LSA individuals does not *objectively* differ (Anderson & Hope, 2009; Mauss et al., 2004). SFA increases *awareness* of anxiety-related physiological sensations, contributing to developing overly negative beliefs about social performance.

A pertinent question is whether individuals with ASD can perceive their own physiological state, known as 'interoception' (Fiene & Brownlow, 2015). William James and C.G. Lange's influential theory of interoceptive awareness from the 1800s proposed that "we feel emotions because we perceive our bodily reactions" (cited in Bennett & Hacker, 2005, p. 48), consistent with later cognitive models describing a fundamental relationship between cognitions, physiology, emotions and behaviours (Beck, 1976). Interoceptive awareness is associated with emotion intensity (Pollatos et al., 2007); identifying one's own emotions seems partly based on perceiving physiological sensations. However, deficits perceiving feelings have been reported in individuals with ASD (e.g. Fiene & Brownlow, 2015; Shalom et al., 2006). The anterior insula, a brain region involved in interoception (Menon & Uddin, 2010), is hypoactive in individuals with ASD (Di Martino et al., 2009). There is conflicting evidence whether individuals with ASD can use self-report measures of emotional distress (e.g. Blakeley-Smith et al., 2012; Mazefsky et al., 2011; Rieffe et al., 2011) and deficits may be related to poor theory of mind (Frith & Happé, 1999; Happé, 2003). If interoceptive awareness is limited in individuals with ASD, the role of SFA in social anxiety may differ to that of typically-developing individuals.

Whilst the interoceptive abilities of individuals with ASD have been questioned, the findings of Wood (2014, *unpublished*) highlighting the role of negative beliefs offer preliminary support for the cognitive model (Clark & Wells, 1995). This study

sought to explore the role of SFA in social anxiety in individuals with ASD, which may have clinical implications for treatment. Aims included extending the findings of Wood (2014, *unpublished*), examining the acceptability of self-report measures of interoception and addressing the following exploratory research questions:

Primary Research Question:

1) Is there any difference in levels of SFA and other-focussed attention (OFA) during a social situation in individuals with ASD and HSA compared with individuals with ASD and LSA?

Additional Research Questions:

2) Is there any difference in levels of interoceptive awareness during a social situation in individuals with ASD and HSA compared with individuals with ASD and LSA?
3) Is there an association between levels of SFA and interoceptive awareness in individuals with ASD?
4) Is there an association between levels of interoceptive awareness and negative beliefs about social performance in individuals with ASD?
5) Does SFA account for more of the variance in social anxiety in individuals with ASD than social skills and anxiety?

METHODS

Design

The study utilised a between-subjects cross-sectional design with two groups (LSA and HSA).

Participants

Participants were 34 individuals with ASD recruited via universities, schools, charities and organisations. Inclusion criteria for participation were: 1) aged 16 years

and above[1], 2) English-speaking, and 3) established diagnosis of ASD provided by an NHS diagnostic service and subsequently verified by a healthcare/educational professional[2]. Exclusion criteria were: 1) diagnosed intellectual disability[3], 2) substance misuse, or 3) significant physical disability impacting upon interoceptive awareness.

Procedure

The procedure was based on the paradigm developed by Cartwright-Hatton (2003; 2005), modified to a group design by Wood (2014, *unpublished*). Ethical approval was obtained from the University of Bath Psychology Department Ethics Committee (reference 14-169). Participants gave written informed consent and the study took place in an educational or domestic setting. Firstly, participants completed a questionnaire pack containing measures of social anxiety and self-consciousness. Secondly, participants completed the social situation task: 1) watching a short film entitled 'Channel 4 Paralympics – Meet the Superhumans', selected by Wood (2014, *unpublished*) due to the neutral yet engaging topic, and 2) a 10 to 15 minute group discussion about the film facilitated by the researcher or research assistant and video-recorded. Thirdly, participants completed a second questionnaire pack containing measures of anxiety, social performance, interoceptive awareness and focus of attention during the social situation. Participants were given a £5 voucher plus travel expenses. Finally, the researcher and a second research assistant, blinded to social anxiety group allocations, watched the video-recordings, independently rated participants' social performance and discussed ratings until consensus was achieved.

[1] Age 16 was selected as a minimum age cut-off so as to include both adolescents and adults in the study that combined an adolescent paradigm with adult measures, and to minimise ethical issues of parental consent.

[2] It was not possible to verify an NHS-provided diagnosis for three participants but the decision was made to include these participants as educational professionals confirmed their diagnosis via a prior educational statement.

[3] Except where a diagnosis had been made prior to age 10, with no subsequent confirmatory assessments *and* an educational professional felt the diagnosis was not valid and there were no concerns about ability to give informed consent and capacity to understand and participate in the study.

Measures

1. Social Anxiety

Social Phobia Inventory (SPIN, Connor et al., 2000). The SPIN is a 17-item questionnaire assessing social anxiety with three sub-scales: fear, avoidance, and physiological sensations. Questions are rated using a 5-point Likert scale (0='not at all', 4='extremely'). Higher total scores (range: 0-68) indicate higher social anxiety. Although psychometric properties of the SPIN in individuals with ASD are unknown, internal consistency in typically-developing adults was excellent (Cronbach's α = .92) and test-retest reliability over two-weeks was good (r = .86) (Antony et al., 2006). Similarly, internal consistency in typically-developing adolescents was excellent (Cronbach's α = .92), test-retest reliability was good (r = .86), and convergent validity with the Social Anxiety Scale for Adolescents was good (r = .82) (Johnson et al., 2006).

Social Anxiety Scale for Adolescents (SAS-A, La Greca & Lopez, 1998). The SAS-A is an 18-item questionnaire assessing social anxiety in adolescents. Questions are rated using a 5-point Likert scale (1='not at all', 4='all the time'). Higher total scores (range: 18-90) indicate higher social anxiety. The measure has excellent internal consistency in typically-developing adolescents (Cronbach's α = .92) and modest test-retest reliability (r = .60) (Storch et al., 2004). The SAS-A has been used in adolescents with ASD (Bellini, 2004, 2006; Wood, 2014, *unpublished*).

2. Self-Focussed Attention

Focus of Attention Questionnaire (FAQ, Woody, 1996). A modified version of the FAQ as described in Mellings and Alden (2000) was used to assess SFA during the social situation (Appendix E). The modified version is a 15-item questionnaire comprising the original 10-items plus five items specific to social anxiety, and assesses two domains: SFA (e.g. 'I was focusing on what I would say or do next') and OFA (e.g. 'I was focusing on what the other people were saying or doing'). Questions are rated using a 5-point Likert scale (1='not at all', 5='very much'), with average scores computed for each domain. The original FAQ has excellent internal

consistency in typically-developing adults (Woody, 1996), whilst Cronbach's alpha of the modified version was .87 for the SFA scale and .49 for the OFA scale (Mellings & Alden, 2000). The original FAQ has been used in typically-developing adolescents (e.g. Higa & Daleiden, 2008), but neither version has been used in individuals with ASD.

3. Interoceptive Awareness

Body Map. A blank body map was used to assess interoceptive awareness during the social situation (Appendix F). Participants marked on the body map where they noticed physiological sensations, wrote a descriptor and indicated intensity using a scale of 1 to 10.

Autonomic Perception Questionnaire (APQ, Mandler et al., 1958). A modified version of the specific form of the APQ was used to assess interoceptive awareness during the social situation (Appendix F). The modified APQ contains 23 items assessing the presence of physiological sensations within seven domains: general awareness, blood pressure, temperature, perspiration, muscle tension, heart rate, respiration, and gastrointestinal symptoms. Items are rated by marking a line representing a 10-point Likert scale (0='never', 9='always'). Higher total scores (range: 0-207) indicate greater interoceptive awareness[4]. Modifications for use in individuals with ASD included: 1) simplifying language to concrete rather than metaphorical terminology, 2) organising items in to 'body area' groups (e.g. hands, stomach), 3) adding images to aid understanding, 4) adding extreme and mid-point numbers to the line, 5) grading the colour of the scale from blue to red to represent intensity of feeling, and 6) ensuring left-to-right ordering of the Likert scale.

4. Social Performance

Performance Scale (Cartwright-Hatton et al., 2003; Cartwright-Hatton et al., 2005). A modified version of the Performance Scale was used to assess self- and observer-ratings of social performance during the social situation (Appendix G). The nine-

[4] An oversight meant that the scale on items in the modified version of the APQ was incorrectly labelled from 0 to 10 instead of 0 to 9. For consistency, this measure was subsequently used with all participants. Responses on each item were manually converted from an 11-point Likert scale to a 10-point Likert scale as per the original version of the APQ and total scores computed using the converted scores.

item scale described by Wood (2014, *unpublished*) was combined with four additional items selected from a modified version of the Behaviour Checklist (Mansell & Clark, 1999; Stopa & Clark, 1993). This 13-item scale examined micro-behaviours, nervous behaviours and positive and negative global impressions. Items were rated using a 4-point scale from strongly agree to strongly disagree[5]. Higher total scores (range: 13-52) indicate better performance. Discrepancy scores of the difference between self- and observer-ratings were computed.

5. Anxiety

Anxiety Scale (Wood, 2014, unpublished). An anxiety scale was used to assess anxiety during the social situation, using an 11-point Likert scale (0='no anxiety at all', 10='extreme feelings of anxiety', Appendix H).

6. Self-Consciousness

Self-Consciousness Scale (SCS, Fenigstein et al., 1975). The SCS, a measure of trait SFA, is a 21-item questionnaire with three sub-scales: public self-consciousness (attention to aspects of the self observable to others), private self-consciousness (internal self-reflection) and social anxiety. Items are rated using a 5-point Likert scale (0='extremely uncharacteristic', 4='extremely characteristic'), with mean scores computed for each subscale and higher scores indicating greater self-consciousness. The SCS has been used in typically-developing adolescents (e.g. Davis & Franzoi, 1991; Rankin et al., 2004) and adults with ASD (e.g. Blackshaw et al., 2001; Lombardo et al., 2007).

Analyses

Data was analysed using SPSS Statistics Version 22. A median split was performed on the total SPIN score (median = 26) to establish two groups: LSA (total SPIN score < 26, n=16) and HSA (total SPIN score ≥ 26, n=18). This median score meant the HSA group scored above recommended clinical cut-offs for the SPIN, which range between 19 and 24 depending upon age (e.g. Connor et al., 2000; Johnson et al., 2006; Ranta et al., 2007).

[5] Scores ranged from 1 to 4 for positive items but inverse scoring was used for endorsement of negative items.

Descriptive statistics and qualitative methods were used to examine measures of interoceptive awareness, including thematically organising qualitative data with illustrative quotes and re-coding APQ responses into categorical data to examine item endorsement frequency. Chi-square tests were used for between-group comparisons.

Pearson correlation coefficients were computed to examine convergent validity of social anxiety measures, whilst Cronbach's alpha coefficients were computed to examine the internal consistency of measures using the total sample. Between-group comparisons of dependent variables within LSA and HSA groups were computed using 2-factor mixed ANOVAs, paired samples t-tests and independent samples t-tests. Pearson correlation coefficients were computed to examine associations between variables, controlling for age and social anxiety. Hierarchical linear regression was used to examine which variables accounted for the variance in social anxiety.

Power Calculations

A priori power calculations were calculated for the main research questions (except correlational analyses). An a priori power calculation for the primary research question using a 2 factor mixed ANOVA estimated a total sample size of 54 would be required to detect a large effect with a power of 80%. For additional questions, an a priori power calculation using an independent samples t-test estimated a total sample size of 52 would be required to detect a large effect with a power of 80% and a two-tailed significance level. Finally, 10 data cases per predictor is recommended for hierarchical linear regression (Field, 2009), so a sample size of 30 would be required to enter three predictors into the model.

RESULTS

Participants

Participants (n=34) were recruited within seven groups, with group size ranging between three and eight participants. One participant was excluded as their scores on two of the main experimental measures were outliers resulting in assumptions for parametric statistics being violated, thus the final sample was N=33. Details of participants' demographic information for each social anxiety group are provided in Table 1, and between-group comparisons using an independent samples t-test and Chi-square test respectively indicated no significant difference in either age or gender.

Table 1. *Demographic information by social anxiety group*

	Low Social Anxiety (n=16)	**High Social Anxiety (n=17)**	**Statistics**
Age, mean (SD)	21.31 (10.0)	19.41 (3.14)	t(18)= 0.73 p= .477, 95% CI [-3.6, 7.4]
Gender, *n* male (%)	13 (81%)	13 (77%)	χ2(1)= 0.11, p= .737

Social Anxiety and Self-Consciousness

Means and standard deviations of scores on the SPIN, SCS subscales, and anxiety measure are provided in Table 2. Internal consistency of the SPIN for the total sample was excellent (Cronbach's $\alpha = .90$), and convergent validity with other social anxiety measures was good: partial correlations, adjusted for age, indicated that the SPIN was significantly positively correlated with the social anxiety SCS subscale (r= .67, p < .001) and anxiety scale (r= .55, p < .001). In the subsample of participants aged below 18 years (n=16), bivariate correlations revealed a significant positive correlation between SPIN and SAS-A scores (r= .66, p= .006). An independent samples t-test indicated that the difference in anxiety scores between HSA and LSA groups was not significant (t(31)= -1.52, p= .139, 95% CI [-2.52, .36]).

Table 2. *Means and standard deviations of anxiety and self-consciousness scores by social anxiety group.*

	Low Social Anxiety (n=16) Mean (SD)	**High Social Anxiety (n=17)** Mean (SD)	**Total Sample (n=33)** Mean (SD)
SPIN	15.19 (5.8)	36.18 (9.14)	26.00 (13.08)
Fear	6.13 (2.92)	12.94 (3.65)	9.64 (4.76)
Avoidance	7.56 (3.50)	16.29 (4.16)	12.06 (5.84)
Physiological Sensations	1.50 (1.51)	6.94 (4.10)	4.30 (3.90)
Anxiety Scale	2.69 (1.92)	3.76 (2.14)	3.24 (2.08)
SCS			
Social Anxiety	1.72 (.61)	2.47 (.61)	2.11 (.71)
Private Self-Consciousness	2.01 (.42)	2.08 (.4)	2.04 (.4)
Public Self-Consciousness	1.99 (.8)	2.47 (.85)	2.24 (.84)

A 2 factor mixed ANOVA was computed to examine the effects of domain of self-consciousness (private/public) and social anxiety group (HSA/LSA) upon ratings of trait levels of self-consciousness (see Table 2). The main effect of self-consciousness was not significant ($F (1, 31)= 3.01$, $p= .093$, partial $\eta^2= .09$), and nor was the interaction between self-consciousness and social anxiety group ($F (1, 31)= 3.51$, $p= .070$, partial $\eta^2= .1$).

Self-Focussed Attention and Social Anxiety

Means and standard deviations of SFA scores measured by the FAQ are provided in Table 3.

Table 3. *Means and standard deviations of self-focussed attention scores by anxiety group.*

	Low Social Anxiety (n=16) Mean (SD)	**High Social Anxiety (n=17)** Mean (SD)
FAQ		
Self-Focussed Attention	1.73 (.27)	2.28 (.51)
Other-Focussed Attention	2.28 (.82)	2.28 (.70)

The FAQ had good internal consistency for the total sample: Cronbach's α was .68 for the SFA scale and .68 for the OFA scale. A 2 factor mixed ANOVA was computed to examine the effects of focus of attention (SFA/OFA) and social anxiety group (HSA/LSA) upon ratings of attention during the social situation (see Table 3). The main effect of focus of attention was significant (F (1, 31)= 4.23, p= .048, partial η^2= .12), and there was a significant interaction between focus of attention and social anxiety group (F (1, 31)= 4.23, p= .048, partial η^2= .12). As illustrated in Figure 1, post-hoc independent samples t-tests revealed SFA scores were significantly higher in the HSA group compared to the LSA group (t(24.52)= -3.9, p= .001, 95% CI [-.84, -.26]). There was no significant difference in OFA scores between HSA and LSA groups (t(31)= -.01, p= .996, 95% CI [-.54, .54]). Post-hoc paired samples t-tests revealed a significant difference between SFA and OFA scores in the LSA group (t(15)= -2.83, p= .013, 95% CI [-.97, -.14]) but not the HSA group (t(18)= 0.00, p= 1.000, 95% CI [-.40, .40]).

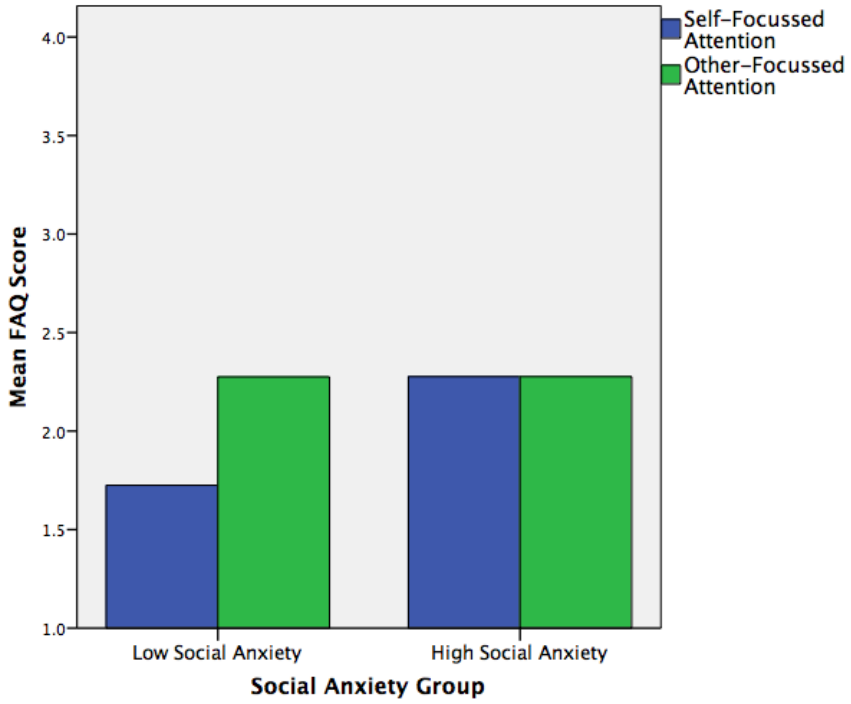

Figure 1. *Bar chart displaying mean scores on the FAQ by social anxiety group.*

Interoceptive Awareness and ASD

Participants completed a body map describing in their own words any physiological sensations noticed during the social situation. 82% of participants (n=27) described a change in physiological sensations (Table 4). The most commonly reported sensations were in the head, chest/heart, abdomen, and feelings of agitation in the extremities.

Table 4. *Participants' self-reported physiological changes during social situation*

Body Area	**Number Endorsing (n=27),** n (%)	**Illustrative Quotes**
Head	11 (41%)	*'head got fuzzy'* *'dry mouth after speech'* *'blushing'*
Chest/Heart	10 (37%)	*'shrinking feeling in chest'* *'racing heart'* *'tight chest'*
Agitation	7 (26%)	*'hands fidgety'* *'restless hands, knees and feet'*
Abdomen	6 (22%)	*'stomach has the "butterflies" effect when speaking'* *'stomach tingles, little bit of discomfort'* *'nervous stomach'*
Perspiration	4 (15%)	*'clammy hands'* *'sweaty palms'*
Muscular Tension	3 (11%)	*'tensing of right arm'* *'stiff shoulders and arms'*

Individual responses on the APQ were examined to assess how this measure was used. All participants (n=33) completed every item on the APQ and scored above 0 on at least one item (min= 0, max= 3.5-9). Responses on the APQ were coded 0 or 1 if participants endorsed at least one item in each physiological domain above 0% or 50% (see Table 5). Most participants endorsed 'general' physiological changes. The most frequently endorsed 'specific' domains were temperature, muscle tension, and gastrointestinal symptoms. Blood pressure and perspiration changes were the least frequently endorsed domains. Chi-square tests were computed when at least 30% of

the total sample endorsed a physiological domain above 50%: the HSA group was significantly more likely to endorse temperature items than the LSA group but there was no significant between-groups difference in general, muscle tension or gastrointestinal endorsement (Table 5).

Table 5. *APQ item endorsement frequencies by total sample and social anxiety group and chi-square analyses.*

Physiological Domain		**Endorsing one item above 0%, n(%)**			**Endorsing one item above 50%, n(%)**					
		Total	**Social Anxiety Group**		**Total**	**Social Anxiety Group**		**Chi-Square**[a]		
Domain	**Items**		**Low**	**High**		**Low**	**High**	χ^2	**df**	**p**
		(n=33)	(n=16)	(n=17)	(n=33)	(n=16)	(n=17)			
General Awareness	3	32 (97%)	15 (94%)	17 (100%)	16 (49%)	7 (44%)	9 (53%)	0.28	1	.598
Blood Pressure	1	15 (45%)	7 (44%)	8 (47%)	3 (9%)	0 (0%)	3 (18%)	-	-	-
Temperature	3	24 (73%)	11 (69%)	13 (76%)	10 (30%)	2 (13%)	8 (47%)	4.66	1	.031
Perspiration	1	15 (45%)	6 (38%)	9 (53%)	2 (6%)	0 (0%)	2 (12%)	-	-	-
Muscle Tension	4	30 (91%)	14 (88%)	16 (94%)	11 (33%)	4 (25%)	7 (41%)	0.97	1	.325
Heart Rate	3	22 (67%)	10 (63%)	12 (71%)	7 (21%)	1 (6%)	6 (35%)	-	-	-
Respiration	4	20 (61%)	9 (56%)	11 (65%)	5 (15%)	2 (13%)	3 (18%)	-	-	-
Gastrointestinal	4	23 (70%)	10 (63%)	13 (76%)	10 (30%)	3 (19%)	7 (41%)	1.96	1	.161

[a] *Chi-square analyses were computed for comparison of HSA and LSA groups where ≥ 30% of the total sample endorsed a physiological domain above 50%.*

Interoceptive Awareness and Social Anxiety

Tests indicated that the distribution of APQ scores was positively skewed and there was heterogeneous variance between groups (see Appendix I for histogram), so logarithm base 10 transformations were executed on APQ scores to ensure data met assumptions for parametric statistics (henceforth referred to as lAPQ). The APQ had excellent internal consistency for the total sample (Cronbach's α = .90), and partial correlations, adjusted for age, revealed a significant positive correlation between scores on the lAPQ and physiological sensations SPIN subscale (r= .48, p= .005). Examining for differences in interoceptive awareness, an independent samples t-test revealed a significant between-groups difference in lAPQ score (t(32)= -2.28, p=.029, 95% CI [-.57, -.03]). lAPQ scores were higher in the HSA group (M= 1.56, SD= .36, n=16) compared with the LSA group (M= 1.26, SD= .39, n=17).

Self-Focussed Attention, Interoceptive Awareness and Social Anxiety

To examine whether SFA was associated with interoceptive awareness, partial correlations, adjusted for age, were computed for the total sample. There was a significant positive correlation between scores on the SFA scale of the FAQ and lAPQ (r= .43, p= .014). Analyses were repeated controlling for SPIN score and the correlation was no longer significant (r= .15, p= .410). There was no significant correlation between scores on the OFA scale on the FAQ and lAPQ (r= .06, p= .760).

Performance Ratings and Social Anxiety

A 2 factor mixed ANOVA was computed to examine the effects of rater (self/observer) and social anxiety group (HSA/LSA) upon ratings of social performance during the social situation (see Table 6). The main effect of rater was not significant (F (1, 31)= 3.25, p= .081, partial η^2= .10), and nor was the interaction between rater and social anxiety group (F (1, 31)= 0.05, p= .819, partial η^2= .00). Finally, an independent samples t-test did not find any significant difference in self-minus-observer discrepancy score between HSA and LSA groups (t(31)= -.42, p= .676, 95% CI [-4.83, 3.17]).

Table 6. *Means and standard deviations of self and observer performance ratings by social anxiety group.*

	Low Socially Anxious (n=16), Mean (SD)	**High Socially Anxious** (n=17), Mean (SD)
Self-Rated Performance	38.75 (5.48)	34.41 (7.13)
Observer-Rated Performance	40.75 (7.11)	37.0 (8.52)
Self-Minus-Observer Discrepancy	-2.0 (5.9)	-2.59 (8.40)

Interoceptive Awareness, Performance Beliefs and Social Anxiety

To examine the contribution of interoceptive awareness on performance beliefs, partial correlations, adjusted for age, were computed for the total sample (Table 7). lAPQ score was significantly negatively correlated with self-rated total performance score, but held no significant correlation with observer-rated performance score or the self-minus-observer discrepancy score. Analyses were repeated controlling for total SPIN score and all significant effects were removed. Post-hoc partial correlations, adjusted for age, indicated that the negative correlation between self-rated performance and lAPQ score did not reach significance in the HSA group (r= -.49, p= .055) and there was no significant correlation in the LSA group (r= -.33, p= .224).

Table 7. *Partial correlations of performance beliefs with lAPQ score for the total sample (n=33).*

	Model 1[a]		**Model 2**[b]	
	r	p	r	p
Self-Rated Performance	-.51	.003	-.30	.097
Observer-Rated Performance	-.27	.134	-.11	.572
Self-Minus-Observer Discrepancy	-.17	.346	-.13	.498

[a] – controlling for age

[b] – controlling for age and total SPIN score

A Model of Social Anxiety in ASD

In order to consider the contribution of cognitive variables (Clark & Wells, 1995) compared with variables specified by the developmental pathways model (Bellini, 2006), a hierarchical linear regression was conducted for the total sample (n=33) with total SPIN score entered as the dependent variable. When observer-rated performance (a measure of social skills) and anxiety scores were entered into the model in block 1, these variables significantly contributed to the regression model and accounted for 25% of the variance ($F(2, 32)= 6.34$, $p= .005$). When SFA FAQ scores were added to the model in block 2, this explained a further 23.2% of the variance and significantly contributed to the model ($F(2, 32)= 10.92$, $p< .001$). Closer examination indicated that only observer-rated performance ($b= -.30$, $t(29)= -2.27$, $p= .031$, 95% CI [-.93, -.05]) and SFA ($b= .516$, $t(29)= 3.80$, $p= .001$, 95% CI [6.30, 21.01]) significantly contributed to the final model.

DISCUSSION

This study aimed to explore the applicability of the cognitive model of social anxiety (Clark & Wells, 1995) to individuals with ASD. Findings highlighted that SFA during the social situation was higher in the HSA group compared to the LSA group, but there was no difference in levels of OFA between groups. Levels of interoceptive awareness were higher in the HSA group than the LSA group. The anticipated discrepancy in self- and observer-rated performance ratings between HSA and LSA groups was not significant. SFA and interoceptive awareness were positively correlated, and interoceptive awareness was negatively correlated with self- but not observer-rated social skills performance ratings. Finally, observer-rated social skills performance and SFA accounted for more variance than anxiety in a regression model of social anxiety.

These findings are consistent with those examining measures of focus of attention in typically-developing individuals (Mellings & Alden, 2000) and with the cognitive model of social anxiety (Clark & Wells, 1995). Analyses indicated that individuals with ASD and LSA focus *less* attention on themselves than others in a social situation, whereas individuals with ASD and HSA focus similarly on themselves as others. The cognitive model postulates that internal information accessible via SFA contributes to negative beliefs about social performance, so individuals with ASD and LSA may have *less* access to such information. Examination of responses on the body map and APQ suggested that individuals with ASD *can* self-report interoceptive information, although the lack of any objective measures of physiology limit conclusions regarding the *accuracy* of self-report. However, whilst SFA was associated with interoceptive awareness in individuals with ASD, conclusions are limited in that correlational analysis does not allow for determining the *directionality* of associations. Whether SFA increased interoceptive awareness or whether physiological arousal increased SFA is unclear, and the latter is more in-keeping with the developmental pathways model (Bellini, 2006) than the cognitive model (Clark & Wells, 1995). Interoceptive awareness was higher in individuals with ASD and HSA and the negative association with beliefs about social skills performance in this group was *approaching* significance, largely consistent with findings in typically-developing individuals (Mansell & Clark, 1999; Mellings & Alden, 2000). However, the same limitations of directionality apply.

This study did not find a discrepancy between self- and observer-rated social performance in individuals with HSA or LSA, in contrast with previous findings in individuals with ASD (Wood, 2014, *unpublished*) and typically-developing individuals (Cartwright-Hatton et al., 2003; Cartwright-Hatton et al., 2005). However, a recent systematic review highlighted that negative self-imagery, associated with SFA, can negatively impact upon *both* self- and observer- ratings of social performance in typically-developing individuals with social anxiety (Ng et al., 2014), so social anxiety as explained by the cognitive model (Clark & Wells, 1995) does not preclude observable differences in social performance. Indeed, this study also failed to find a difference in observer-rated social performance between individuals with HSA and LSA. This finding is in contrast with the predictions of the developmental model that social anxiety in individuals with ASD is partly

attributable to differences in social skills ability (Bellini, 2006), which seems to suggest that variables *other* than social skills may be contributing to differences in social anxiety. An alternative explanation is that individuals with HSA may be more socially *aware* (Bellini, 2004), which could positively impact upon observable social skills performance in such individuals. However, observer-rated social performance *was* found to be a significant variable in the regression model when social anxiety was measured as a continuous variable, and so this lack of between-groups difference may have been an artefact of the study design that used a median split to establish HSA and LSA groups. Such conflicting findings highlight the need for further examination of the predictions of the developmental pathways model in comparison with cognitive factors.

The non-significant difference in OFA and private self-consciousness between individuals with ASD and HSA and LSA is consistent with findings in typically-developing individuals (Fenigstein et al., 1975; Mellings & Alden, 2000). However, the absence of a between-groups difference in public self-consciousness differs from findings in typically-developing individuals which conclude this to be associated with social anxiety (e.g. Rapee & Heimberg, 1997; Saboonchi et al., 1999). The literature is unclear regarding whether typically-developing individuals and those with ASD differ in levels of self-consciousness (e.g. Blackshaw et al., 2001; Lombardo et al., 2007). Theory of mind may be integral to awareness of thoughts and feelings within one's *own* mind (Frith & Happé, 1999; Happé, 2003), so one might anticipate individuals with ASD respond differently on measures of self-consciousness. However, some high-functioning individuals with 'Asperger' syndrome can pass theory of mind tests (Bowler, 1992), so the *severity* of ASD, not measured in this study, may be integral to understanding levels of self-consciousness in this population.

Limitations

The study was underpowered for several analyses, potentially increasing the scope for type II errors; results must be interpreted cautiously. Sample representativeness is unclear – individuals with greater social deficits or higher social anxiety may have declined to participate in the anxiety-provoking study. Participants were

predominantly recruited within settings where small groups were already formed, potentially increasing familiarity among group participants, reducing anxiety in the social situation and impacting upon validity. An error in the wording of the anxiety scale, intended to measure anxiety during each social situation group, meant that the scale enquired about how participants thought they *appeared* rather than how they felt, which means it was not the most accurate measure of state anxiety. The lack of measurement of ASD symptoms and absence of screening for intellectual disability or other psychiatric disorders is a limitation, and the absence of a typically-developing control group precluded clearer conclusions regarding how this group differs from individuals with ASD.

Using a median split to distinguish groups of HSA and LSA may not have created distinct groups and increased potential for type II errors. Other studies have included participants with social anxiety scores from the top and bottom third of the sample to create groups (e.g. Mansell & Clark, 1999; Mellings & Alden, 2000), although the small sample size precluded this method. Furthermore, the measures outlined here have not all been validated for use in individuals with ASD and the age range of participants may also be a confounding factor, although age was controlled for where possible. Finally, the lack of an independent double-blind rater for assessing observer-rated performance is a limitation that increased the potential for type I or II errors.

Research Implications

Findings should be replicated with larger samples, a more robust method of establishing LSA and HSA groups and the addition of a typically-developing control group. Further research manipulating focus of attention, physiological arousal and positive and negative imagery in individuals with ASD and LSA and HSA might offer clearer conclusions regarding the impact of these variables on social performance. In addition, further research should incorporate a measure of theory of mind to establish how the ability to take other people's perspectives and have insight into one's own mind impacts upon SFA.

Clinical Implications

The findings outlined here are not in opposition to the developmental pathways model of social anxiety (Bellini, 2006): support for the role of SFA in social anxiety suggests an *additional* area for clinical intervention with individuals with ASD beyond just social skills training and relaxation. Some combined interventions already exist, for example, the Multimodal Anxiety and Social Skills Intervention for adolescents with ASD incorporates cognitive-behavioural treatment (CBT) for anxiety with social skills training (White et al., 2010). A recent randomised-control trial found better outcomes for children with ASD and anxiety who received CBT than a waitlist control group (Wood et al., 2009). Whilst neither study specifically examined social anxiety disorder, they do provide evidence that a multimodal approach incorporating CBT might be useful for individuals with ASD and social anxiety. Although further research is needed, specific interventions might address SFA. Video techniques have been used in individuals with ASD for social skills development (Bellini et al., 2007), and video feedback could provide an alternative perspective of oneself to that created from interoceptive information accessed via SFA.

Conclusions

This study sought to examine the applicability of the cognitive model of social anxiety (Clark & Wells, 1995) to individuals with ASD. Findings offer support for the role of SFA and interoceptive awareness in social anxiety in individuals with ASD. A regression model highlighted that there may be a cognitive component to the disorder in *addition* to observer-rated social skills performance. Further research is required, ideally utilising larger sample sizes, a typically-developing control group and manipulating focus of attention and physiological sensations. Future clinical interventions for social anxiety in individuals with ASD might consider combining social skills training and relaxation with cognitive interventions.

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Executive Summary

THE ROLE OF SELF-FOCUSSED ATTENTION IN SOCIAL ANXIETY IN INDIVIDUALS WITH HIGH-FUNCTIONING AUTISM SPECTRUM DISORDER

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Social anxiety is one of the most common anxiety disorders in adolescents with autism spectrum disorder (ASD). Social anxiety is defined as an intense anxiety or fear about being in social situations, in particular fearing negative judgement from others. Due to the high level of distress that such anxiety can cause, people with social anxiety commonly avoid social situations wherever possible, so it can be an extremely limiting disorder. ASD is a neurodevelopmental disorder that is defined by difficulties with social communication and interaction, along with restricted and repetitive patterns of behaviour, interests or activities. As social difficulties are fundamental to a diagnosis of ASD, it can be difficult to recognise additional social anxiety among such individuals.

The developmental pathways model of social anxiety (Bellini, 2006) explains social anxiety in individuals with ASD as a combination of two factors: 1) social skills deficits resulting in more negative experiences in social situations, and 2) difficulties coping with high levels of anxiety-related bodily sensations triggered by such negative social experiences. In line with this model, social skills training and relaxation is the recommended treatment approach. Interestingly, social anxiety in typically-developing individuals (i.e. those without ASD or other neurodevelopmental disorder) was initially thought to be explained by social skills deficits. However, a pivotal study found that observers did not rate the social skills performance of typically-developing individuals with high levels of social anxiety any different from those with low levels of social anxiety.

The cognitive model of social anxiety (Clark and Wells, 1995) focuses on the role of individuals' *excessively* negative beliefs about themselves. The model predicts that individuals who worry about their performance in social situations will pay more attention to themselves than to the other people in a social situation, which they believe will help monitor their performance. Self-focussed attention like this can result in noticing more anxious bodily feelings, and so people often think that because they *feel* anxious they must *appear* anxious to others, which is seen as a social failure and increases anxiety. The model has a well-established evidence-base in typically-developing individuals but less is known about whether this model also applies to individuals with ASD. This was the focus of the current study.

Thirty-three people with ASD, aged 16 years and above, took part in the study, which involved filling in questionnaires and taking part in a group-based task. Participants first completed questionnaires about social anxiety and self-consciousness. The group-based task, intended to simulate a social situation, involved watching a short film clip and taking part in a group discussion, which was video-recorded. Seven 'social situation' groups were run with between three and eight participants in each group. Following the group-based task, participants completed further questionnaires about their experience during that social situation. This included questions about where participants focussed their attention (i.e. on themselves or on other people), how many bodily sensations they noticed, how anxious they felt overall and how well they think they performed. The researcher and a second research assistant then watched the videos of the group discussion and completed observer-ratings of how well they thought participants performed in the social situation. These ratings were compared to see if there was any discrepancy between participants' ratings of their own social skills performance and observer ratings of participants' social skills performance.

Data from participants was divided into two groups based on their scores on a social anxiety questionnaire: a group of 16 individuals with high social anxiety and a group of 17 individuals with low social anxiety. Participants' scores on each of the remaining questionnaires were compared to see if there was any difference between the high and low social anxiety groups. Statistical tests highlighted that people in the high social anxiety group were more likely to focus attention on themselves and notice more bodily sensations in the social situation than people in the low social anxiety group. These two factors were significantly correlated, meaning that as self-focussed attention increased, so did awareness of bodily sensations. There was no difference in levels of self-consciousness between the high and low social anxiety groups.

There was no significant difference in either self- or observer-rated social skills performance between high and low social anxiety groups, meaning that participants' ratings of their own social performance was similar to observers' and this was not affected by participants' level of social anxiety. There was also no significant difference in the discrepancy between self- and observer-ratings between high and

low social anxiety groups. However, there *was* a significant negative correlation between awareness of bodily sensations and self-rated social skills performance, meaning that participants who noticed more bodily sensations were more likely to rate their social performance less well. There was no correlation between awareness of bodily sensations and observer-rated social skills performance, suggesting these two factors were not associated. A regression analysis found that lower scores of observer-rated social skills performance and higher levels of self-focussed attention partly accounted for higher scores on a social anxiety questionnaire.

The findings of this study are similar to the findings of previous research that has examined cognitive factors in typically-developing individuals. This suggests that aspects of the cognitive model may be relevant to understanding social anxiety in people with ASD, and in particular the role of self-focussed attention in a social situation. However, the findings *also* show that observer-rated social skills performance is a relevant factor, as is suggested by the developmental pathways model of social anxiety. Further research is needed to better understand these aspects of social anxiety in people with ASD. The findings suggest that it may be of benefit to add cognitive approaches to the current methods of social skills training and relaxation for the psychological treatment of individuals with ASD and high social anxiety.

Connecting Narrative

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Introduction

The research component of the Doctorate in Clinical Psychology required the completion of three research projects: a main research project, a service improvement project and a critical review of the literature. In addition, five clinical case studies were completed. This connecting narrative will outline the challenges, successes and learning gained throughout the process of developing these very different components of research. A key theme of all three research projects was novelty: topics that sparked my interest but were entirely new to my knowledge base, requiring extensive learning to embed myself within each clinical area. A secondary theme was the concept of stigma: each project focused on a population where access to psychological assessment and intervention can be hampered by fears of stigma related to the disorder, behaviour or environment. Stigma can impact upon individuals from all walks of life, which highlights the importance of developing ways of overcoming this barrier.

Main Research Project

Study Development

The initial proposal that I put forward for my main research project was unfortunately not pursued for a number of reasons. My initial proposal focussed upon developing an understanding of anxiety in people with early onset Parkinson's disease. Whilst the decision not to pursue this project was supported by the course team, I then had to develop a new idea for my main research project late into the second year. This was challenging and stressful to complete in such a short space of time, and I am aware of the impact this had upon my final research project. Whilst I would have preferred additional time to more rigorously consider and develop both the study design and methodology used, I was under pressure from rigid ethical approval deadlines.

The new research project aimed to examine the application of the cognitive model of social anxiety in people with autism spectrum disorder (ASD). The idea, developed from discussions with Dr Ailsa Russell and Dr Claire Lomax, was grounded in the findings of a previous main research project undertaken by Dr Helen Wood, at that

time a trainee in her final year. Whilst I had only limited experience of working clinically with individuals with ASD at that point in time, I was able to draw on my experience of working within a child and adolescent mental health service and witnessing how frequently some clinicians assume that a diagnosis of ASD precludes the use of any psychological intervention with individuals beyond either social skills training or medication. This experience felt reminiscent of a stigma towards individuals with ASD whereby clinicians see the 'label' but not the person. As such, it was exciting to be involved in a project that sought to challenge these embedded and potentially unhelpful 'norms' within clinical settings.

The Story of Recruitment

With my new research idea developed I felt excited to embark upon the project and begin recruitment. However, recruitment proved much harder than anticipated which, on reflection, was largely attributable to the nature of the study design and a number of decisions that had been taken to make recruitment easier but instead had the opposite effect. The study sought to examine social anxiety in people with ASD by simulating a social situation, which took the form of a short group task requiring *at least* three individuals to be participating at any one time. Anticipating that a group design would make recruitment simpler by being able to run greater numbers of participants at once, I failed to consider the implications of a group design for *participants*. This was a particularly unfortunate oversight on my part, given that individuals with ASD can find new and unfamiliar experiences challenging, and social situations can be difficult regardless of whether or not such individuals suffer from co-morbid clinical levels of social anxiety. Furthermore, the logistics of a group design required coordinating multiple individuals with ASD to be in the same location at the same time, which I discovered was no easy feat.

My recruitment strategy utilised non-NHS sources and so I had to work hard to develop links with local professionals for recruitment. A particularly useful link was with Peter Harnett, Autism and Communication Service Manager, who was enthusiastic about the potential implications of the research within educational settings, and provided links to more than 30 professionals in schools, colleges and organisations in the South West. Presenting at the South West Autism Network meeting was another useful opportunity for networking. Unfortunately, many

professionals were unable to help with recruitment as they predominantly worked with children aged *below* 16 years. Whilst the decision to include individuals aged 16 years and above was related to issues of gaining informed consent without requiring parental consent, broadening the age range to include younger adolescents may have led to more recruitment opportunities and a more focussed age range for the sample.

Additional recruitment strategies included advertising the research via the National Autistic Society, some use of social media including Twitter and Facebook, the University of Bath and at the Autism Oxford research conference, and establishing links with other researchers in the Psychology Department at the University of Bath. Overall, I learned a great deal from this process, including the fundamental importance of considering feasibility for participants rather than the researcher and the importance of developing and maintaining professional relationships to assist with recruitment.

The Benefits of Hindsight

The process of recruitment, statistical analysis and writing results was challenging in many ways, as I constantly became aware of factors that I had not previously considered or things that I perhaps should have done differently. For example, I realised that perhaps a slightly different study design, such as that which *manipulated* self-focussed attention, might have enabled firmer conclusions about the findings. However, such a design would have required even larger sample sizes, which may have made this unfeasible. Furthermore, the early part of my recruitment was combined with Dr Helen Wood's research, and consequently the design needed to remain similar. Maintaining a balance between complexity and feasibility is undoubtedly a challenge with the development of all research projects. I have also come to realise that perhaps the process of engaging in a research project of any kind leads to the development of further research ideas that are beyond the scope of the initial project. This desire to know more than we can ever know at the present time is ultimately why research is, and always will be, evolving.

Contribution to Clinical Practice

ASD is not an area in which I had any experience of working, so it was a highly valuable experience to meet numerous individuals with ASD and learn about the

intricacies and vast spectrum of difficulties associated with the disorder, and this has been extremely useful for my own clinical practice. Thinking more broadly, one particularly eloquent participant spoke to me about the unfairness of how individuals with ASD so often need additional support but 'fall between the gaps' of services. Given the extensive evidence-base of some therapeutic models for typically-developing individuals, I hope that researchers will begin to focus on other populations in the future, such as individuals with ASD, in order to develop the evidence-base in these areas, provide equality in the services available for all individuals and offer people with ASD the level of support they so often need and fundamentally deserve. I hope that the findings of this study will pave the way for further research examining the application of cognitive behavioural models to individuals with ASD.

Service Improvement Project

Study Development

The idea for my service improvement project began through initial discussions with Professor Paul Salkovskis and Dr Megan Wilkinson-Tough, the latter of who worked in a forensic medium secure unit. Forensic Psychology is not an area in which I had any prior experience or knowledge, so it was exciting but challenging to step outside my comfort zone quite so drastically. Visiting the medium secure unit and consulting with a service user (person with personal experience) about the project was a pertinent step in understanding the service, as well as the project and its potential implications.

Although within the same medium secure unit, the initial proposal I developed for my service improvement project was different to the final version reported here. The initial proposal was to examine service user views of barriers and facilitators to engaging in Index Offence Assessment and Formulation in the medium secure unit and to see whether service user views matched staff perceptions. Discussions with supervisors highlighted that barriers to engagement might include fears of stigma and shame, and we realised that these barriers might also be present if we chose to use semi-structured interviews with service users, so an anonymous questionnaire design

was deemed more appropriate. However, this project was discontinued mid-way through second year; reasons for this change included changing supervisors in the second year (due to maternity leave) and concerns about feasibility and logistics given the timescale and requirements of a service improvement project. A significant restructuring in the medium secure unit at that time also negatively impacted upon staff morale and reduced clinician availability to support a project involving service users. As such, examining *staff* perceptions of barriers and facilitators seemed a more feasible approach, and the service felt this would be highly beneficial as they had never collectively examined Index Offence Assessment and Formulation in any depth. Ultimately, this experience of project development gave me clarity about the difference between research and service improvement as well as an understanding of the complexities of working with systems in flux.

Personal Learning

Completing a project within a Forensic Psychology setting was an extremely interesting experience. The clinical component of the service improvement project helped me to recognise that the fundamental psychological principles within forensic settings are the same as other mental health contexts, even though the client group is different. In addition, the project gave me the opportunity to learn about qualitative methodology, which I had not used before. I had some concerns about the subjective nature of the approach, but I learnt that thematic analyses can be applied both systematically and rigorously, and that it is actually a very complex methodological approach that provides a rich and detailed understanding of a topic. This approach also gave me an experience of developing and running focus groups, which helped me to learn the importance of good preparation and how to carefully manage complex group dynamics.

Contribution to Clinical Practice

The outcome of the service improvement project was well received by the service, who felt it to be useful in summarising the difficulties faced by the service and in highlighting opportunities for development. It was interesting that the project emphasised the importance of barriers specific to the *person*, such as fears of stigma and shame, and barriers within the wider *organisation,* the latter of which might not have been highlighted had the project examined only service user views. I felt

concerned that the recommendations to address barriers within both domains were not particularly complex or novel. However, I recognised that recommendations do not need to be complex to be effective, and sometimes the process of completing a service improvement project is the greatest contribution in itself in demonstrating the *scope* for potential development that already exists within the service. Of course, that such changes had not already been implemented highlights the challenges that Clinical Psychology services are currently facing within the NHS. However, at difficult times, demonstrating the need for and benefits of service improvement changes using rigorous and systematic methods is fundamentally important, so perhaps this project actually came at an ideal time.

Critical Review of the Literature

Topic Development

I can recall feeling particularly inspired by a lecture about post-traumatic stress disorder (PTSD) from Martina Mueller in my first year of training. Beginning with that lecture, I have developed an interest in the psychological impact of trauma, and I was keen to pursue this interest in one of my research projects. The idea for my critical review of the literature arose from discussions with Dr Jeremy Gauntlett-Gilbert about completing my main research project in the area. While this did not lead to a main research project, we spoke about several potential ideas for a literature review exploring PTSD in military veterans. A meeting with Professor Paul Salkovskis helped refine these ideas into the final topic, which examined alcohol misuse and PTSD in UK military veterans. Limiting the review to veterans of Iraq and/or Afghanistan was a careful decision made in order to ensure the review was focussed but also relevant to the current times. However, I knew little about the role of alcohol misuse in psychological disorders and even less about military psychology, although I found the topic area fascinating and was extremely eager to learn.

Personal Learning

Completing the critical review of the literature taught me a great deal about the importance of incorporating rigour into reviews, both through the use of systematic

searches to draw upon relevant literature as well as *critiquing* literature rather than simply providing a summary of what other authors have concluded. I realised that reviewers have an important role in drawing together current literature in a way that highlights the pertinent findings within a topic area but also makes apparent any limitations regarding the validity or reliability of such findings. Writing the review was more challenging than I had anticipated, perhaps largely due to the surprising realisation that my review question drew on only a small body of literature. This was highly surprising to myself and my supervisors, given the established theoretical grounding for the review question. However, with extensive thought, countless discussions with supervisors and careful consideration, I feel extremely proud of the final product. I learnt a great deal about the military, its procedures and embedded attitudes. At times, my learning led me to feel in awe of those military veterans who choose to take on vital and dangerous roles in the service of their country, yet simultaneously concerned and frustrated by the vulnerabilities of such veterans and the stigma that can prevent access to psychological support when needed. However, these frustrations are perhaps indicative of my determined interest and desire to learn more about the psychological impact of trauma in the future.

Contribution to Clinical Practice

On reflection, perhaps the fundamental importance of my review has been to highlight the gaps in the literature, and I hope that this will assist with raising awareness of such gaps and prompt further research into the area in the future.

Case Studies

Completing a case study on each clinical placement has been a great learning experience throughout the course, not only in documenting my clinical abilities but also in recognising the way in which single case studies can demonstrate new learning and offer a contribution to the literature that goes beyond a simple demonstration of clinical abilities. Although the generalizability of single case designs is limited, such approaches can offer a richness that is not possible within large-scale randomised control trials and can often be a starting point for developing new ideas and research questions. Learning how to incorporate a specific focus into

each case study regarding the unique contribution to the literature was extremely useful and encouraged me to develop critical and innovative thought. Whilst this was challenging at times, in the past year or so I finally began to feel confident in my ability to achieve such an aim.

The process of writing each case study forced me to *thoroughly* consider the evidence base of each treatment approach that I used, to think about appropriate ways of evaluating the effectiveness of interventions, and to reflect on what I could have done differently. This process enabled me to develop knowledge within areas of Clinical Psychology of which I had no prior experience, such as how to adapt cognitive-behaviour therapy for children and young people, people with learning disabilities or long-term health conditions. Clinical Psychologists hold a fundamental responsibility for clients to offer effective and evidence-based psychological interventions, and this requires a high level of knowledge and skill as well as an on-going curiosity and awareness of new research. Writing case studies is one way of ensuring that one is keeping up to date with but also contributing to the evidence-base.

Future Research Aspirations

I have thoroughly enjoyed completing the different components of research throughout the course and I have come to recognise that research is a fundamental aspect of being a Clinical Psychologist. Training has instilled in me an awareness of the importance of being a scientist-practitioner, and the process of completing three research projects of which I feel proud, even in the face of considerable challenges, has given me confidence and inspired me to continue completing high-quality research within my future career. I have learnt that implementing change within services and using evaluation methods is pertinent to demonstrating effectiveness and sustaining change in the long-term, which is particularly important in the current NHS climate and I hope to take this knowledge and contribute to service development in my future career. I have also learnt the importance of devoting time and effort to developing carefully thought out and clinically relevant research projects. Finally, I have learnt the fundamental importance of developing good

working relationships, maintaining good communication and collaborating with other researchers. At times, I felt that completing this research was an impossible task, yet I feel proud of the research projects that I have achieved and I hope to pursue some of these projects through to publication in peer-reviewed journals. My learning throughout this entire process will be integral to my future ability to develop high-quality and worthwhile research. Research is ultimately about driving forward the future of Clinical Psychology in order to develop both theoretical knowledge and to improve the quality of life of individuals in distress, and I hope to be a small part of that future.

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Thank you to both of my clinical tutors, Dr Cathy Dysch and Josie Millar, for always being so approachable and supportive. Thank you to all of my placement supervisors for supporting me with my clinical learning and for all research advice given along the way: Gill Turnbull, Dr Jo Daniels, Dr Nick Benians, Dr Lisa Fensome, Linda Walz, Dr Claire Cheswick, Dr Leon Dysch and Dr Julia Cadogan. Many thanks also to the entire Psychology Department Admin Team for their endless assistance.

Finally, I would like to say thank you to my family for all their help and support throughout this process, and for unrelentingly listening to my trials and tribulations whilst celebrating with me alongside my achievements. I truly could not have done this without you. Thank you.

Appendices

APPENDIX A. Focus Group Interview Schedule

1. There seems to be no clear definition or guidelines for Index Offence assessment and formulation work in the literature. My working definition of Index Offence assessment and formulation work within the MSU is as follows: *"Psychological assessment and formulation techniques are adapted by Psychologists to incorporate specialist understanding of the Index Offence, thereby highlighting motivating factors for committing the offence as well as determining the likelihood of re-offending. This helps Psychologists make appropriate decisions about treatment and contributes to decisions about discharge from the MSU".* Do you agree with this definition or do you have a different understanding?

2. Do you agree that there are difficulties with implementing Index Offence assessment and formulation work with service users in the MSU?

3. Why do service users in the MSU find it hard to complete Index Offence assessment and formulation work? For example, what do you think are the most frequent barriers that prevent service users from engaging in Index Offence assessment and formulation work with Psychologists at the MSU?

4. Conversely, what helps service users in the MSU to successfully complete Index Offence assessment and formulation work? For example, what do you think motivates service users to engage? Are there any strategies or approaches that Psychologists do to facilitate engagement?

5. 'Miracle' question: There are various re-structuring changes currently happening in the MSU that may have future implications for the implementation of Index Offence assessment and formulation work. Momentarily putting that to one side, what would the ideal service look like that allowed Index Offence assessment and formulation work to happen to the best of its potential?

6. If there are differences between the ideal service just described and the current setup within the MSU, what would help to close the gap? For example, do you feel you have any particular organisational, training or resource-related needs that would help you to implement Index Offence assessment and formulation work?

7. If we put forward a case for making changes to the way Index Offence assessment and formulation work is implemented, it is useful to know what you think are the implications for service users in the MSU who do not engage in this work? For example, does engaging in this work really change decisions about risk or open up different treatment opportunities for service users?

APPENDIX B. Caseload Questionnaire

Department of Psychology | UNIVERSITY OF BATH

Caseload Questionnaire

Index Offence Assessment and Formulation Project

This questionnaire aims to provide a 'snapshot' of the Index Offence assessment and formulation work that is currently being completed within the Medium Secure Unit (MSU).

Please complete this brief and anonymous two-page questionnaire for every client on your caseload – please use one questionnaire per client. Please include clients that you are actively working with and also those that you are not working with for whatever reason, but who remain on your caseload. Please note, this questionnaire refers to Index Offence *assessment and formulation work only*.

Please do not include any identifying information about each client. There are 11 questions in this questionnaire in three parts; please complete Part One for every client, then complete either Part Two or Part Three as appropriate. If you are not sure how to respond to a particular question, please note this down and move on to the next question.

Client number: _____

PART ONE: ***Please complete questions 1 to 6 for every client.***

1. Are you currently **actively working** in any way with this client? Yes No
(please circle)

2. What is the **Index Offence category** for this client? You may circle as many as appropriate:
(please circle)

Homicide / Violence / Sexual / Arson / Theft / Fraud / Other

3. Is Index Offence assessment and formulation work **currently appropriate** for this client? Yes No
(please circle)

4. If Index Offence assessment and formulation work is **not currently appropriate** for this client, please briefly specify below the reasons **why not**:

5. Has Index Offence assessment and formulation work been **completed** OR are you currently **actively engaged** in such work with this client? Yes No
(please circle)

6. Has Index Offence assessment and formulation work **previously been completed** by a different clinician, either at this MSU or elsewhere? Yes No
(please circle)

1

PART TWO: ***Please ONLY complete question 7 if Index Offence assessment and formulation work has NOT been completed in any form with this client:***

7. Please briefly specify below **why** Index Offence assessment and formulation work has **NOT been completed** with this client, e.g. particular barriers around client engagement, neuro-developmental factors, practical reasons, prioritisation of other clinical work, etc:

PART THREE: ***Please ONLY complete questions 8 to 11 if Index Offence assessment and formulation work has been (or is currently being) completed with this client.***

8. Please indicate below any specific **assessment measures and formulation tools** used with this client, e.g. particular questionnaires, cognitive assessments, etc:

9. Please briefly indicate below **what helped** with completing Index Offence assessment and formulation work with this client, e.g. staff support, client motivation, etc:

10. Please give an **indication of the timescale** for completing Index Offence assessment and formulation work with this client. If such work is currently being completed, please indicate the current timescale below:

11. Please briefly indicate below the **impact or outcome** of completing Index Offence assessment and formulation for this client, e.g. identifying treatment, increasing client insight, etc:

****End of Questionnaire****

APPENDIX C. IOAF 'Readiness' Checklist

Draft: **"INDEX OFFENCE ASSESSMENT AND FORMULATION 'READINESS' CHECKLIST"**

UNIVERSITY OF BATH

POSSIBLE READINESS FACTORS		PROCESS OF ENGAGEMENT	POSSIBLE OUTCOMES
INTERNAL READINESS	**EXTERNAL READINESS**		
1) Cognition	***SERVICE-USER CONTEXT***	Attendance	*At least one of:*
Denial or admittance of Index Offence			1) Risk reduction plan
Beliefs about future offending	***10) Personal Circumstances***	Participation	2) Risk management plan (internal/external)
Beliefs about the Medium Secure Unit/Psychology	Previous IOAF experience	Therapeutic alliance	3) Identified treatment priorities
Beliefs about engaging in IOAF	Availability of 'case file' context	Met agreed timescale	4) Increased service-user insight/understanding
Beliefs about capabilities/coping	Current legal proceedings		5) Increased wider care team understanding
2) Affective	***11) Interpersonal support***		6) Benefit to service-user emotional well-being
Emotional well-being	Support/encouragement from system		7) Service-user skills development
Emotion regulation skills	Presence of rewards (care pathway links)		
3) Volitional	Experience of stigma/shame		
Intrinsic motivation to change	***ORGANISATIONAL CONTEXT***		
Pursuit of future goals	***12) Location***		
Conflict with goals	Flexibility of appropriate location (e.g. on/off ward)		
4) Cognitive Function	***13) Opportunity***		
Memory systems (encoding/recall)	Availability of IOAF		
Executive skills (e.g. sequencing)	Responsiveness of wider care team		
Attention/concentration skills	***14) Organisational Resources***		
5) Behavioural stability	Adequately skilled, supported, motivated, stable wider care team		
Risk of violence to clinician	Adequate Psychologist capacity		
6) Traits	***15) IOAF Process Factors***		
Impulsivity	Clarity on purpose, process and outcomes		
Avoidant personality	Collaborative approach		
7) Relating	Use of appropriate methods		
Ability to trust others	Appropriate pace/timescales		
Ability to form relationships	Appropriate expectations		
8) Mental Health	***16) Psychologist Factors***		
In/stability of mental health symptoms	Adequate supervision		
9) Physical Factors	Interpersonal dynamics		
Fatigue	Personal impact		

Adapted from:

Ward, T., Day, A., Howells, K., & Birgden, A. (2004). The multifactor offender readiness model. *Aggression and Violent Behavior, 9*(6), 645-73.

Tetley, A., Jinks, M., Huband, N., Howells, K., & McMurran, M. (2012). Barriers to and facilitators of treatment engagement for clients with personality disorder: a Delphi survey. *Personality and Mental Health, 6*(2), 97-110.

APPENDIX D. Service Feedback

The following written feedback was provided from the Psychology team within the MSU in response to a presentation from the researcher outlining the findings and subsequent recommendations of this project.

"As a service we find the recommendations clear, useful and highly relevant. In particular the need for a more explicit framework around IOAF work. The suggested model for thinking about readiness to engage in IOAF work is helpful and could fit well within the overall framework we are developing for mental health orientated and risk related interventions across people's care pathways within the unit. The finding that perceived barriers in the men's service mirrored perceived facilitators in the women's service also indicates that we potentially have some solutions already. Another aspect we will be taking forward will be to develop opportunities for sharing ideas between the Men's and Women's services, including a specific focus on facilitating IOAF work."

APPENDIX E. Focus of Attention Questionnaire

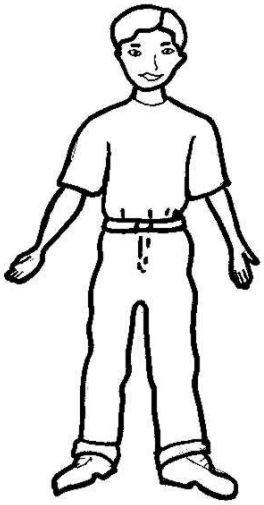
The following statements are about what you were paying attention to during the group discussion you have just taken part in. Please read each statement, and circle the number on a scale of 1 to 5 that most applies to you. A score of 1 on the scale means that you did not pay attention at all, and a score of 5 on the scale means that you totally paid attention.

During the group discussion that I just took part in…

	Not at all	**Somewhat**	**Moderately**	**Mostly**	**Totally**
I was focussing on the other people's appearance or dress.	1	2	3	4	5
I was focussing on the feeling of butterflies in my stomach.	1	2	3	4	5
I was focussing on the features or conditions of the physical surroundings, e.g. appearance, temperature.	1	2	3	4	5
I was focussing on what I would say or do next.	1	2	3	4	5
I was focussing on the impression I was making on the other people.	1	2	3	4	5
I was focussing on how the other people might be feeling about themselves.	1	2	3	4	5
I was focussing on the tension in my body.	1	2	3	4	5
I was focussing on what I thought of the other people.	1	2	3	4	5
I was focussing on my level of anxiety.	1	2	3	4	5
I was focussing on what the other people were saying or doing.	1	2	3	4	5
I was focussing on my shaky speech.	1	2	3	4	5
I was focussing on my internal bodily reactions, for example, heart rate.	1	2	3	4	5
I was focussing on past social failures.	1	2	3	4	5
I was focussing on my body shaking or trembling.	1	2	3	4	5
I was focussing on my feelings of discomfort.	1	2	3	4	5

APPENDIX F. Modified Autonomic Perception Questionnaire

BODILY FEELINGS QUESTIONNAIRE



This questionnaire is about noticing physical feelings in your body, and is in two parts. **Please complete both parts.**

PART ONE

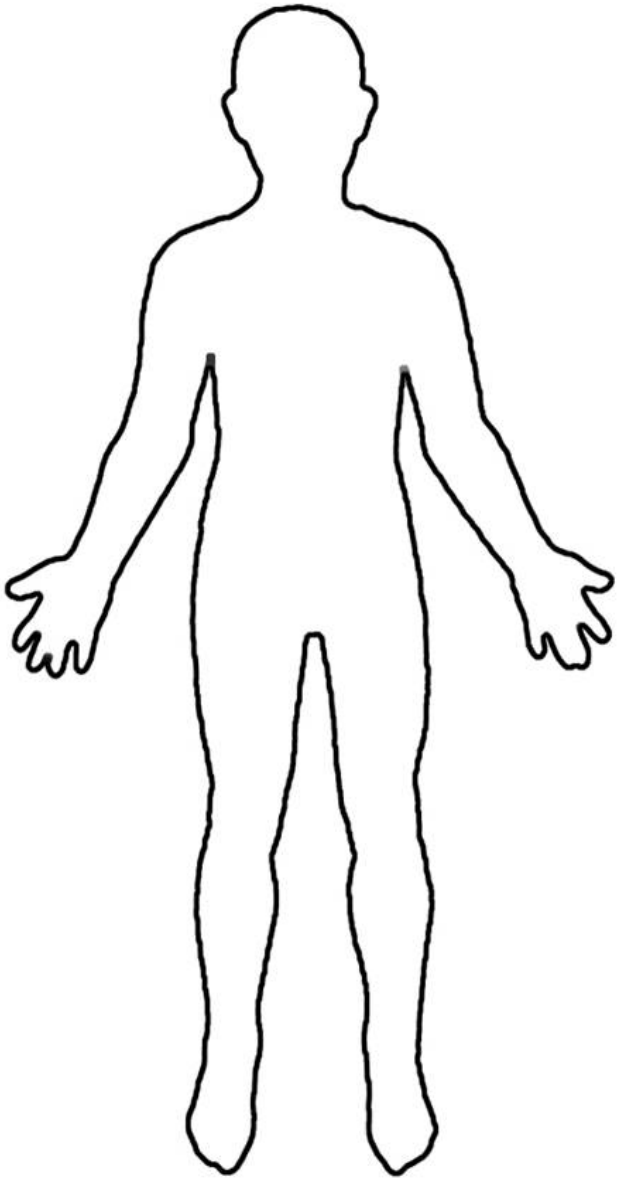
Here is a map of the body. What did your body feel like during the group discussion?

1) Please mark on the body with an **X** anywhere that you noticed any physical feelings or changes in your body during the group discussion. You can make as many marks as you want, and you can mark anywhere on the body. There are no right or wrong answers.

2) Next to each mark that you make, please write a few words to describe the physical feeling or change you noticed in your body.

3) Please then write how strong the physical feeling or change in your body was using a scale of 1 through to 10. 1 means a very weak physical feeling or change and 10 means a very strong physical feeling or change.

For example, you could mark on the chest if you noticed your heart beating fast, or you could mark on the hands if you noticed your palms getting sweaty.



PART TWO

This part has 23 questions about physical feelings or changes in your body.

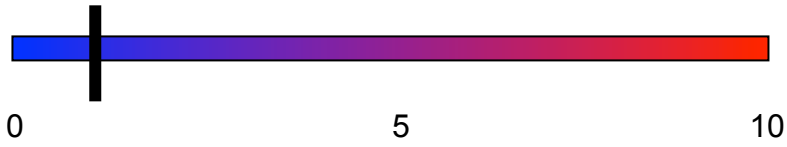
When filling out the questionnaire, please think about how your body felt during the group discussion you just took part in.

The questions are grouped in to the different areas of your body. There are pictures with the different areas of the body circled in red to help you think about this.

You will be asked to rate how much you noticed each bodily symptom on the scale below each question. The scale ranges from 0 (did not notice the bodily symptom) through to 10 (noticed the bodily symptom very much). The scale is also coloured differently to help you. The blue end of the scale means you did not notice any physical feelings or changes and the red end of the scale means you noticed lots of physical feelings or changes.

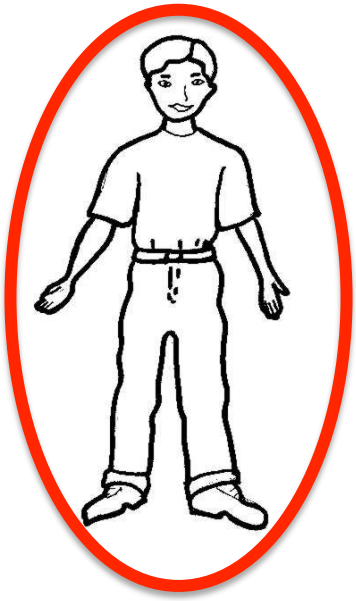
To rate your response on the scale, please make a vertical mark at the point on the scale that reflects **how much you noticed the bodily symptom** in each question. There are no right or wrong answers.

You can mark your response on the scale using a line like this:



General Awareness of Bodily Feelings

(These questions are all about physical feelings in your body in general)



1. During the group discussion, were you aware of **many** bodily feelings?

0 5 10

Aware of very few Aware of very many

2. During the group discussion, **how often** were you aware of your bodily feelings?

0 5 10

Never Always

3. During the group discussion, how much were you **bothered** by your bodily feelings?

0 5 10

Not bothered at all Bothered very much

Head/Face

(These questions are all about physical feelings in your head or face)

4. During the group discussion, did you ever get a **headache**?

0 5 10
Never Always

5. During the group discussion, did you ever feel **dizzy or light-headed**?

0 5 10
Never Always

6. During the group discussion, did your **face feel hot**?

0 5 10
No change Very hot

Mouth/Throat

(These questions are all about physical feelings in your mouth or throat)

7. During the group discussion, did your **mouth become dry**?

0 5 10
Never Always

8. During the group discussion, did you ever get the feeling of a **lump in your throat**?

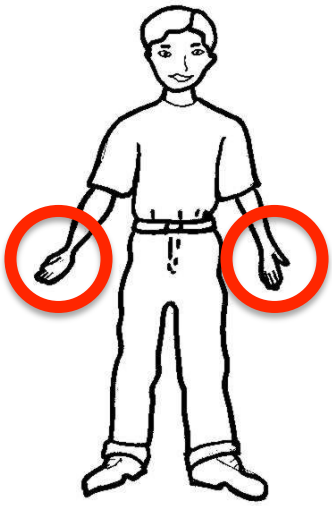
0 5 10
Never Always

9. During the group discussion, did you ever have any **difficulty talking**?

0 5 10
Never Always

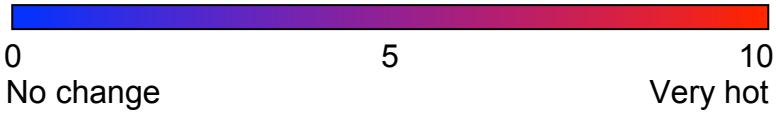
Hands

(These questions are all about physical feelings in your hands)



10. During the group discussion, did your **hands feel cold**?

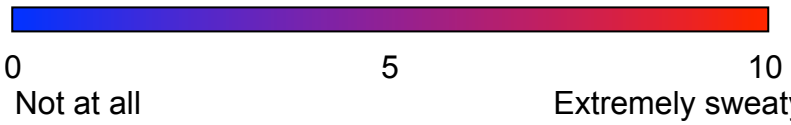
11. During the group discussion, did your **hands feel hot**?



Skin/Muscles

(These questions are all about physical feelings in your skin and muscles)

12. During the group discussion, did you ever **sweat**?

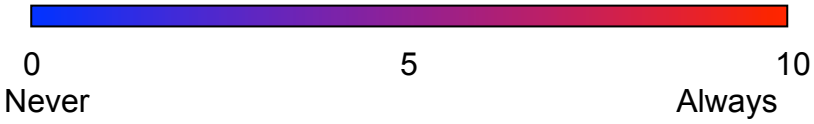


13. During the group discussion, did your **muscles feel tense** or hard?

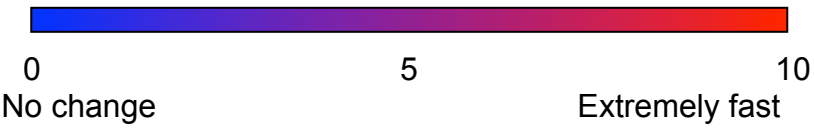
Heart

(These questions are all about changes in your heart rate)

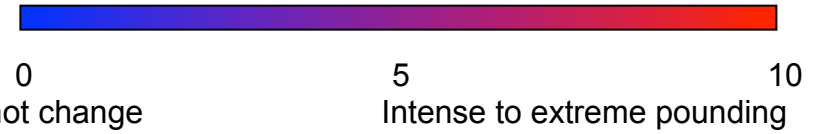
14. During the group discussion, did you ever notice any **changes** in your heart beat?



15. During the group discussion, did you ever notice your heart beat get **faster**?

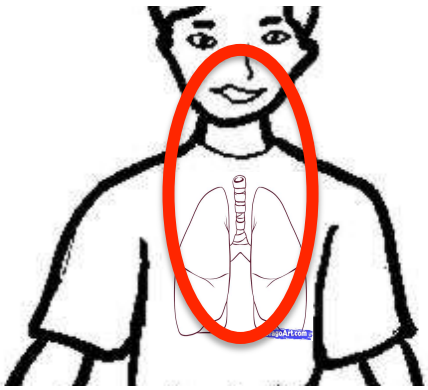


16. During the group discussion, did you ever notice your heart beat **harder** e.g. did your heart felt like it was pounding in your chest?



Breathing

(These questions are all about changes in your breathing)



17. During the group discussion, were you aware of any **changes** in your breathing?

0 — 5 — 10

Never — Always

18. During the group discussion, did your breathing ever get **faster**?

0 — 5 — 10

No change — Very fast

19. During the group discussion, did you ever breathe more **deeply**, e.g. did you take longer breaths from the bottom of your stomach?

0 — 5 — 10

No change — Much more deeply

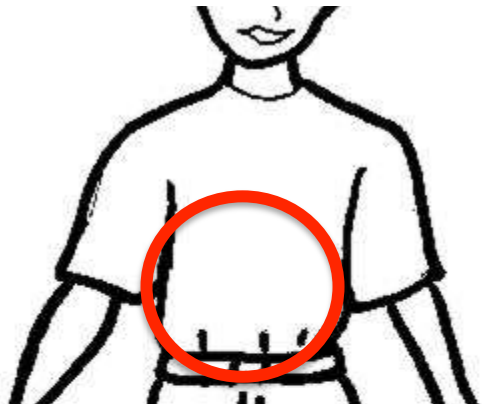
20. During the group discussion, did you ever breathe more **shallowly**, e.g. take lots of short little breaths from the top of your lungs?

0 — 5 — 10

No change — Much more shallowly

Stomach

(These questions are all about physical feelings in your stomach)



21. During the group discussion, did you ever get an **uncomfortable feeling** in your stomach?

0 — 5 — 10

Not at all — Very uncomfortable

If so, can you write some words in this box to describe what the uncomfortable feeling in your stomach felt like:

22. During the group discussion, did your stomach ever feel like **you needed to be sick?**

0 — 5 — 10

Not at all — Very sick

23. During the group discussion, did your stomach ever feel like **you needed to go to the toilet**?

0 — 5 — 10

Never — Always

APPENDIX G. Performance Scale

Please think about how the group discussion went then circle how much you agree with the following statements.

I spoke confidently	Strongly agree	Agree	Disagree	Strongly disagree
I seemed friendly	Strongly agree	Agree	Disagree	Strongly disagree
I spoke clearly	Strongly agree	Agree	Disagree	Strongly disagree
I seemed clever	Strongly agree	Agree	Disagree	Strongly disagree
I was good at making eye contact	Strongly agree	Agree	Disagree	Strongly disagree
What I said in the group was really good	Strongly agree	Agree	Disagree	Strongly disagree
I appeared nervous	Strongly agree	Agree	Disagree	Strongly disagree
I smiled	Strongly agree	Agree	Disagree	Strongly disagree
I blushed	Strongly agree	Agree	Disagree	Strongly disagree
I appeared awkward	Strongly agree	Agree	Disagree	Strongly disagree
I appeared embarrassed	Strongly agree	Agree	Disagree	Strongly disagree
I appeared uncomfortable	Strongly agree	Agree	Disagree	Strongly disagree
I appeared relaxed	Strongly agree	Agree	Disagree	Strongly disagree

APPENDIX H. Anxiety Scale

Please circle a number on the line below that indicates how anxious you think you appeared overall during the group discussion. The scale goes from 0 (no anxiety at all) through to 10 (extreme feelings of anxiety).

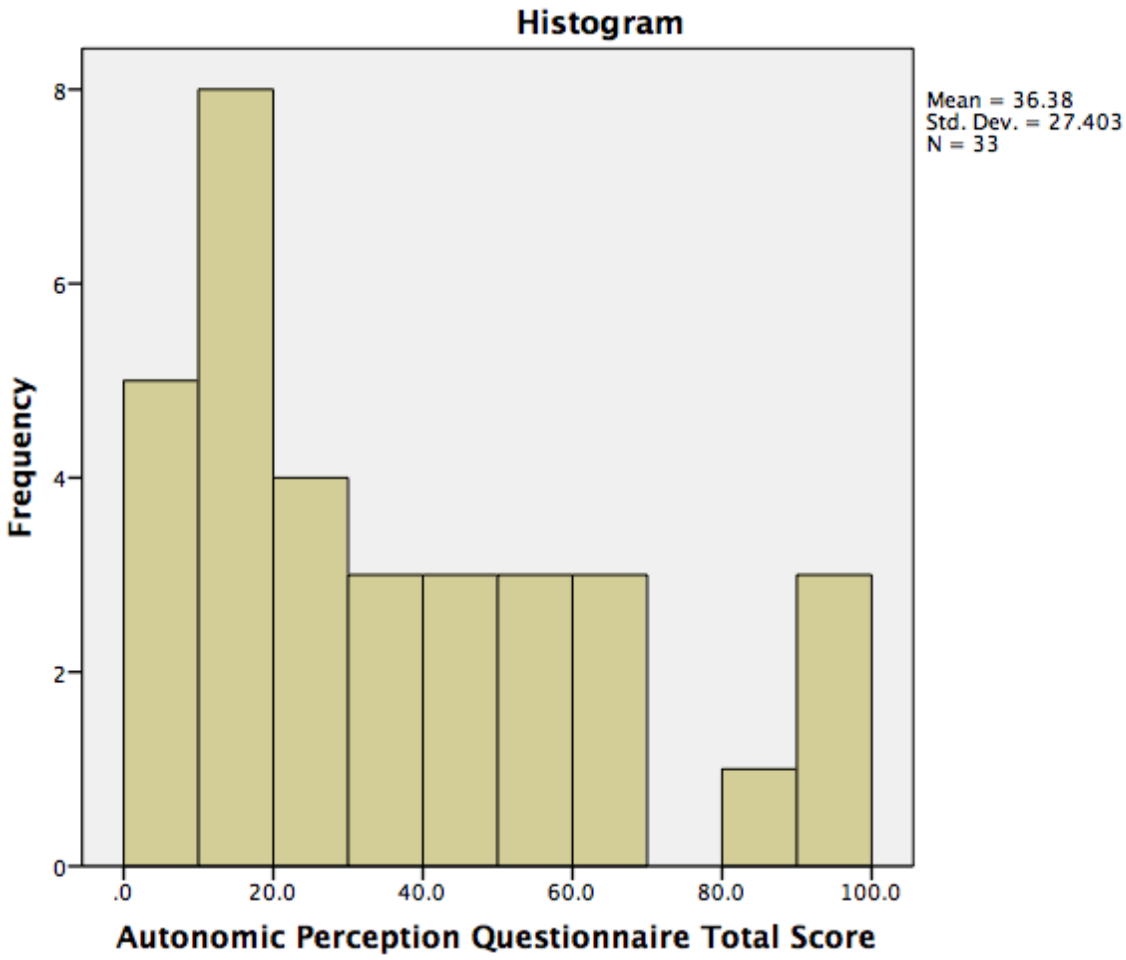
0 1 2 3 4 5 6 7 8 9 10

No anxiety at all

Extreme feelings of anxiety

APPENDIX I. Histogram of APQ Scores

This histogram demonstrates the distribution of total scores on the APQ for the total sample (n=33).



APPENDIX J. *'Journal of Psychiatric Research'* Author Guidelines

ELSEVIER

JOURNAL OF PSYCHIATRIC RESEARCH

AUTHOR INFORMATION PACK

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ISSN: 0022-3956

DESCRIPTION

Founded in 1961 to report on the latest work in **psychiatry** and **cognate** disciplines, the *Journal of Psychiatric Research* is dedicated to innovative and timely studies of four important areas of research:

(1) Clinical studies of all disciplines relating to **psychiatric illness**, as well as normal **human behaviour**, including biochemical, physiological, genetic, environmental, social, psychological and epidemiological factors;

(2) Basic studies pertaining to psychiatry in such fields as **neuropsychopharmacology**, **neuroendocrinology**, **electrophysiology**, **genetics**, **experimental psychology** and **epidemiology**;

(3) The growing application of clinical laboratory techniques in psychiatry, including **imagery** and **spectroscopy** of the brain, molecular biology and computer sciences;

(4) Advances in basic and clinical research methodology, including the process of "bench-to-bedside" transfer of new research findings.

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AUDIENCE

Basic and clinical researchers in psychiatry.

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GUIDE FOR AUTHORS

Description

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(3) the growing application of clinical laboratory techniques in psychiatry, including imagery and spectroscopy of the brain, molecular biology and computer sciences;
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Journal of Psychiatric Research considers three types of manuscripts for possible publication:
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For further details on how to submit online, please visit www.elsevier.com/submissionsupport

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Authors of reports on human studies, especially those involving placebo, symptom provocation, drug discontinuation, or patients with disorders that may impair decision-making capability, should consider the ethical issues related to the work presented and include (in the Methods and Materials section of their manuscript) detailed information on the informed consent process, including the method or methods used to assess the subject's capacity to give informed consent, and safeguards included in the study design for protection of human subjects. Specifically, authors should consider all ethical issues relevant to their research, and briefly address each of these in their reports. When relevant patient follow-up data are available, this should also be reported. Specifically, investigators reporting on research involving human subjects or animals must have prior approval from an institutional review board. This approval should be mentioned in the methods section of the manuscript. In countries where institutional review boards are not available; the authors must include a statement that research was conducted in accordance with the Helsinki Declaration as revised 1989. All studies involving animals must state that the authors followed the guidelines for the use and care of laboratory animals of the author's institution or the National Research Council or any national law pertaining to animal research care.

Conflict of interest

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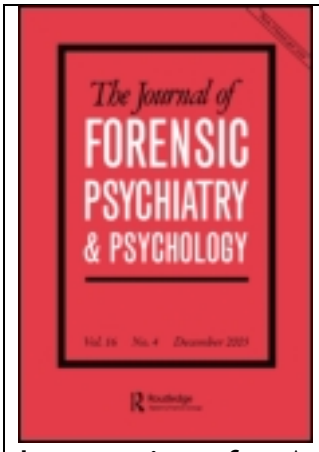

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6. Supplemental online material
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APPENDIX L. *'Autism'* Author Guidelines

Manuscript Submission Guidelines: *Autism: The International Journal of Research and Practice*

Autism provides a major international forum for research of direct and practical relevance to improving the quality of life for individuals with autism or autism-related disorders.

1. Peer review policy

Autism operates a strictly anonymous peer review process in which the reviewer's name is withheld from the author and, the author's name from the reviewer. The reviewer may at their own discretion opt to reveal their name to the author in their review but our standard policy practice is for both identities to remain concealed. Each new submission is carefully read by one of the Editors to decide whether it has a reasonable chance of getting published. If the Editor thinks it does not have this chance, at least one other Editor will be consulted before finally deciding whether or not to send the manuscript out for review. *Autism* strives to do this within two weeks after submission, so that authors do not have to wait long for a rejection. Feedback is also provided on how to improve the manuscript, or what other journal would be more suitable. Each manuscript is reviewed by at least two referees. All manuscripts are reviewed as rapidly as possible, and an editorial decision is generally reached within (e.g.) 6-8 weeks of submission.

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2. Article types

The Journal considers the following kinds of article for publication:

1. Research Reports, describing new experimental findings;
(a) Full papers
(b) Short reports requiring rapid dissemination (2,000 words maximum, no more than 2 tables and 15 short references)

2. Review Articles. The Editors wish to encourage the following types of review, but request that authors contact them in advance:
(a) general reviews that provide a synthesis of an area of autism research;
(b) critiques - focused and provocative reviews that are followed by a number of invited commentaries, with a concluding reply from the main author;

3. Letters to the Editors. Readers' letters should address issues raised by published articles or should report significant new findings that merit rapid dissemination. The decision to publish is made by the Editors, in order to ensure a timely appearance in print. Letters should be no more than 800 words, with no tables and a maximum of 5 references.

4. Book Reviews. A list of up-to-date books for review is available from the Journal's Editorial Manager.

Full papers are generally restricted to a maximum of 6,000 words, including all elements (title page, abstract, notes, references, tables, biographical statement, etc.). We are reluctant to burden our referees with very long manuscripts. Editors may ask authors to make certain cuts before sending the article out for review.

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3. How to submit your manuscript

Before submitting your manuscript, please ensure you carefully read and adhere to all the guidelines and instructions to authors provided below. Manuscripts not conforming to these guidelines may be returned.

Autism is hosted on SAGEtrack a web based online submission and peer review system powered by ScholarOne Manuscripts. Please read the Manuscript Submission guidelines below, and then simply visit http://mc.manuscriptcentral.com/autism to login and submit your article online.

IMPORTANT: Please check whether you already have an account in the system before trying to create a new one. If you have reviewed or authored for the journal in the past year it is likely that you will have had an account created. For further guidance on submitting your manuscript online please visit ScholarOneOnline Help.

All papers must be submitted via the online system. If you would like to discuss your paper prior to submission, please refer to the contact details below.

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4.1 SAGE Open

If you wish your article to be freely available online immediately upon publication (as some funding bodies now require), you can opt for it to be included in SAGE Open subject to payment of a publication fee. The manuscript submission and peer reviewing procedure is unchanged. On acceptance of your article, you will be asked to let SAGE know directly if you are choosing SAGE Open. For further information, please visit SAGE Open.

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5. Declaration of conflicting interests

Within your Journal Contributor's Publishing Agreement you will be required to make a certification with respect to a declaration of conflicting interests. *Autism* does not require a declaration of conflicting interests but recommends you review the good practice guidelines on the SAGE Journal Author Gateway.

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6. Other conventions

We would prefer to use the term 'people with autism' or 'people with autism spectrum disorders or conditions'. We would also prefer the term 'typically developing' rather than 'normal'.

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7. Acknowledgements

Any acknowledgements should appear first at the end of your article prior to your Declaration of Conflicting Interests (if applicable), any notes and your References.

All contributors who do not meet the criteria for authorship should be listed in an `Acknowledgements' section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance, or a department chair who provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance.

7.1 Funding Acknowledgement

To comply with the guidance for Research Funders, Authors and Publishers issued by the Research Information Network (RIN), *Autism* additionally requires all Authors to acknowledge their funding in a consistent fashion under a separate heading. All research articles should have a funding acknowledgement in the form of a sentence as follows, with the funding agency written out in full, followed by the grant number in square brackets:

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9. Manuscript style

9.1 File types

Only electronic files conforming to the journal's guidelines will be accepted. Preferred formats for the text and tables of your manuscript are Word DOC, RTF, XLS. LaTeX files are also accepted. Please also refer to additional guideline on submitting artwork and supplemental files below.

9.2 Journal Style

Autism conforms to the SAGE house style. Click here to review guidelines on SAGE UK House Style

9.3 Reference Style

Autism operates a Sage Harvard reference style. Click here to review the guidelines on SAGE Harvard to ensure your manuscript conforms to this reference style.

9.4. Manuscript Preparation

The text should be double-spaced throughout and with a minimum of 3cm for left and right hand margins and 5cm at head and foot. Text should be standard 10 or 12 point.

9.4.1 Your Title, Keywords and Abstracts: Helping readers find your article online

The title, keywords and abstract are key to ensuring readers find your article online through online search engines such as Google. Please refer to the information and guidance on how best to title your article, write your abstract and select your keywords by visiting SAGE's Journal Author Gateway Guidelines onHow to Help Readers Find Your Article Online.

9.4.2 Corresponding Author Contact details

Provide full contact details for the corresponding author including email, mailing address and telephone numbers. Academic affiliations are required for all co-authors. These details should be presented separately to the main text of the article to facilitate anonymous peer review.

9.4.3 Guidelines for submitting artwork, figures and other graphics

For guidance on the preparation of illustrations, pictures and graphs in electronic format, please visit SAGE's Manuscript Submission Guidelines.

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9.4.4 Guidelines for submitting supplemental files

This journal is able to host approved supplemental materials online, alongside the full-text of articles. Supplemental files will be subjected to peer-review alongside the article. For more information please refer to SAGE's Guidelines for Authors on Supplemental Files.

9.4.5 English Language Editing services

Non-English speaking authors who would like to refine their use of language in their manuscripts might consider using a professional editing service. Visit http://www.sagepub.co.uk/authors/journal/submission.sp for further information.

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10. After acceptance

10.1 Proofs

We will email a PDF of the proofs to the corresponding author.

10.2 E-Prints and Complimentary Copies

SAGE provides authors with access to a PDF of their final article. For further information please visit http://www.sagepub.co.uk/authors/journal/reprint.sp. We additionally provide the corresponding author with a complimentary copy of the print issue in which the article appears up to a maximum of 5 copies for onward supply by the corresponding author to co-authors.

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11. Further information

Any correspondence, queries or additional requests for information on the Manuscript Submission process should be sent to the Editorial Office as follows:

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